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No. 00-____

In the Supreme Court of the United States

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., AND SAMSUNG SEMICONDUCTOR, INC.,

Petitioners,

v.

SEMICONDUCTOR ENERGY LABORATORY CO., LTD.,

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. Whether proven misrepresentations in a series of related patent applications made as part of an intentional scheme to deceive the United States Patent and Trademark Office ("PTO"), can constitute mail fraud under 18 U.S.C. § 1341, on the theory that a patent which has not yet issued from the PTO, is "property" of which the United States is deprived when it issues the patent.[1]

2. Whether federal patent law preempts New Jersey RICO claims when the state law RICO claims are based on the predicate act of offering a false instrument to the PTO for filing, and liability under the state law RICO offense requires proof of additional elements beyond those that were required to establish the inequitable conduct defense to patent infringement liability.

3. Whether the federal mail fraud statute, 18 U.S.C. § 1341, requires "convergence," *i.e.*, that the misrepresentations in question be directed at the target of the fraud.

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[1] The Court granted a writ of certiorari to the Fifth Circuit in *Cleveland v. United States*, on the related question "Can alleged false statements or omissions in applications for state licenses be the basis for federal mail or wire fraud charges, on the theory that a license that has not yet issued constitutes 'property' of the State, of which the State is deprived when it issues the license?" Petition For A Writ Of Certiorari To The United States Court Of Appeals For The Fifth Circuit, *Cleveland v. United States* (filed in the Supreme Court Nov. 8, 1999) (No. 99-804).

PARTIES TO THE PROCEEDING

The parties to the proceeding in the United States Court of Appeals for the Federal Circuit were petitioners Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively "Samsung"), and respondent, Semiconductor Energy Laboratory Co., Ltd.

RULE 29.6 STATEMENT

For purposes of S. Ct. R. 29.6, Samsung Electronics Co., Ltd. states that it is a publicly traded corporation organized under the laws of the Republic of Korea. It has no parent or publicly traded affiliates as those terms are commonly employed under United States law, and there is no parent or publicly held company owning 10% or more of its stock. Samsung Electronics America, Inc., and Samsung Semiconductor, Inc., are not publicly traded.

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Petition For A Writ Of Certiorari To The United States Court Of Appeals For The Fifth Circuit, *Cleveland v. United States* (filed in the Supreme Court November 8, 1999) (No. 99-804) i

In the Supreme Court of the United States

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PETITION FOR A WRIT OF CERTIORARI

Petitioners Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively "Samsung") respectfully petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit as it relates to dismissing Samsung's federal RICO claims because the PTO was not defrauded of "property" and dismissing Samsung's New Jersey RICO claims as preempted by federal patent law.

OPINIONS BELOW

The Federal Circuit's opinion is reported at 204 F.3d 1368, and is reprinted in the Petitioner's Appendix ("App.") at 1a-35a. The judgments, opinions, and orders of the United States District Court for the Eastern District of Virginia that

are necessary to ascertain the grounds of the decision under review are reprinted in the Appendix at 36a-116a.

JURISDICTION

The order of the Federal Circuit issued on March 2, 2000. App. 29a. Semiconductor Energy Laboratory Co. ("SEL") timely filed a combined motion for rehearing and rehearing *en banc*. The court of appeals granted SEL's petition for rehearing for the limited purpose of amending its March 2, 2000 opinion to correct a misstatement of fact on March 29, 2000 and again on April 5, 2000. App. 30a, 32a. The court of appeals denied the petition for rehearing *en banc* on April 26, 2000. App. 34a. The Court has jurisdiction to entertain the present petition under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

This case implicates the federal statute prohibiting filing false documents, 18 U.S.C. § 1001, the federal mail fraud statute, 18 U.S.C. § 1341, and the federal Racketeer Influenced and Corrupt Organization act, ("RICO"), 18 U.S.C. §§ 1961, 1962, and 1964 (App. 117a-124a). This case also implicates the New Jersey statute prohibiting the offering of a false instrument for filing, N.J. Stat. Ann. § 2C:21-3.b, and the New Jersey RICO act, N.J. Stat. Ann. §§ 2C:41-1, 1.1, 2, 4, 6, 6.1 (App. 125a-134a).

STATEMENT OF THE CASE

A. SEL Sues Samsung For Patent Infringement

On October 10, 1996, SEL filed a complaint alleging that Samsung infringed three of SEL's patents. Samsung denied infringement and asserted a number of affirmative defenses, including inequitable conduct, and counterclaimed

charging SEL with RICO, antitrust and unfair competition claims.[2] By stipulation, SEL amended its complaint to remove with prejudice two of the three patents in suit, and proceeded with U.S. Patent No. 5,543,636 ("the '636 patent") as the only patent in suit.

B. Samsung's Affirmative Defense of Inequitable Conduct And The Scheme That Formed The Basis of Samsung's RICO Counterclaims

In response to SEL's claims of infringement, Samsung raised the affirmative defense of inequitable conduct based on SEL's deliberate misrepresentations and omissions in the patent application process. App. 140a (¶ 24). Samsung further alleged that SEL and its agents, in particular its patent attorney, "combined and conspired to fraudulently obtain the Patents-in-Suit." App. 141a (¶ 29).

Samsung also counterclaimed for, among other things, RICO violations under federal and New Jersey State[3] law. It is these counterclaims which form the basis of this petition. Samsung alleged that SEL and others had perpetrated a broad scheme of fraud involving many misrepresentations which

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[2] The jurisdiction of the district court was invoked under 28 U.S.C. § 1338, as an action arising under the patent laws of the United States, 35 U.S.C. §§ 1 et seq. The jurisdiction of the district court over the federal RICO claims was proper under 28 U.S.C. § 1331 and 18 U.S.C. § 1964(c). The jurisdiction of the district court over the New Jersey State RICO claims was proper under 28 U.S.C. §§ 1332 and 1367(a).

[3] The New Jersey RICO claims were brought only by Samsung Electronics America, Inc., a New York corporation with its principal place of business in New Jersey. App. 178a-179a (¶¶ 132-37).

were made to obtain a number of different U.S. patents. App. 38a.[4] Samsung claimed that SEL had

> . . . developed a plan to defraud, for obtaining money or property by means of false or fraudulent pretenses, or representations to representatives of the United States Patent and Trademark Office ("PTO") and various manufacturers and sellers of active matrix display devices,[5] including SEC, SEA and SSI (collectively "Samsung"). The plan principally consisted of procuring United States patents through knowing and false filings and representations to the PTO, followed by attempts to coerce multiple active matrix display panel manufacturers and sellers to pay for licenses on these invalid and unenforceable patents.

App. 170a (¶ 109).

Samsung alleged that this scheme or artifice to defraud was done "with the purpose of obtaining property from the PTO and others by false pretenses," that, at the time SEL was obtaining its patents, Samsung was one of SEL's intended targets, App. 171a (¶ 110), and that the plan was conceived and executed "with the intent of obtaining patents from the PTO and money from the targets," App. 175a-176a (¶ 120).

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[4] Unlike some organizations which acquire patents on products they make and manufacture, SEL is a research and development company that exists primarily to apply for and license patents. *Cf.* App. 45a. Its organizational purpose makes clear that, when SEL makes knowing and intentional misrepresentations to deceive the PTO into issuing patents, it is doing so for the purpose of offensively asserting the wrongfully acquired patent against others. A patent has no defensive value to SEL if not used for extracting royalties or for litigation.

[5] Commonly used as the screens in laptop computers.

As part of its state and federal RICO claims, Samsung alleged the predicate act of mail fraud in violation of 18 U.S.C. § 1341.[6] App. 177a (¶ 124). As part of its state RICO claims, Samsung alleged the predicate act of offering of a false instrument for filing in violation of New Jersey law (N.J. Stat. Ann. § 2C:21-3.b), and 18 U.S.C. § 1001. *Id.*

C. The District Court Proceedings Relevant To This Petition

SEL moved for summary judgment on Samsung's inequitable conduct defense and on Samsung's RICO, antitrust, and unfair competition counterclaims. The district court granted SEL's motion on the RICO and antitrust counterclaims. App. 36a, 105a. The case proceeded to a bench trial at which the district court found that SEL committed inequitable conduct, held the '636 patent unenforceable, and dismissed SEL's infringement suit against Samsung with prejudice. App. 44a. SEL filed a motion to reconsider the district court's finding of inequitable conduct, which was denied. App. 88a. In response to the motion for reconsideration the district court did, however, issue an additional, supplemental opinion to correct misstatements of fact. *Id.* In doing so, the district court found an independent and additional basis for the unenforceability of the '636 patent, namely SEL's inequitable conduct in the prosecution of other, related patents. App. 103a.[7] *See generally, Consolidated*

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[6] Samsung also alleged violations of the federal wire fraud statute. Because the mail and wire fraud statutes are to be construed *in pari materia*, they will be referred to in this petition as mail fraud.

[7] Subsequent to the Federal Circuit's decision, which effectively insulated SEL's fraudulent scheme from resulting in affirmative liability to SEL, SEL sued Samsung again based on patents closely related to one of the patents it removed from this litigation. *Semiconductor Energy*

Aluminum Corp. v. Foseco International Ltd., 910 F.2d 804 (Fed. Cir. 1990) (infectious unenforceability).

1. The District Court's RICO Ruling

In granting summary judgment dismissing on Samsung's RICO claims, the district court (Cacheris, J.) acknowledged that Samsung had alleged a broad scheme in which SEL fraudulently acquired patents and then "sought money from Samsung and others by threatening them with litigation over these fraudulently obtained patents." App. 38a. In essence, the claim was that "SEL defrauded the PTO, but the intended, albeit indirect, victim of the fraud [was] Samsung." App. 38a-39a.

The district court was persuaded, however, that without evidence of a direct fraud on Samsung,[8] the key to Samsung's claims was whether a mail fraud offense could be stated based on misrepresentations made to the PTO to induce the issuance of a patent. App. 39a. The district court likened the issuance of a patent to the issuance of a license. App. 39a (citing *Mylan Lab., Inc. v. Akzo, N.V.*, 770 F. Supp. 1053, 1071-73 (D. Md. 1991) (considering whether the FDA could be defrauded into issuing ANDA approvals under the

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Laboratory Co. Ltd. v. Samsung Electronics Co. Ltd., Case No. 1:00CV00750 (D. D.C.) (filed April 7, 2000).

[8] The district court rejected Samsung's claim that it had been the direct victim of mail or wire fraud, when it concluded that "Samsung provides no evidence on which a jury could reasonably find [that Samsung had been the victim of] the predicate acts necessary to sustain a RICO claim." App. 41a. While Samsung believes that it provided sufficient evidence to withstand summary judgment on that point, Samsung does not contest that issue here. Rather, Samsung challenges the district court's and the Federal Circuit's implicit finding that Samsung cannot sustain a mail fraud claim as the *indirect* but intended target of fraud through misrepresentations directed at the PTO.

mail or wire fraud statutes)). The court then concluded that, because "the PTO does not lose money or property when it issues a patent," SEL's conduct before the PTO does not violate the federal mail fraud statute. App. 40a. The analogous question of whether an unissued license is property under the mail fraud statute is now before the Court in *Cleveland v. United States*, 120 S. Ct. 1416 (No. 99-804) (cert. granted March 20, 2000).

The district court also concluded that Samsung's New Jersey RICO claims failed because those state claims relied on the same predicate act (mail fraud) that impaired the federal claims, and further concluded that Samsung had additionally failed to satisfy the essential "enterprise" element of 18 U.S.C. § 1962(c). App. 41a.

2. The District Court's Inequitable Conduct Rulings

Following the rulings on dispositive motions, the district court (Ellis, J.) conducted a seven-day bench trial on Samsung's affirmative defense of inequitable conduct based on SEL's intentional failure to disclose references material to the patentability of the '636 patent and other patents, and the submission of a deceptively misleading English translation of a material Japanese prior art reference as well as other misrepresentations. App. 44a. In holding SEL committed inequitable conduct, the district court made numerous findings of fact (undisturbed on appeal), which supported the predicate acts of Samsung's RICO allegations.

The district court concluded that, "[i]n the instant case, a review of the record as a whole points clearly and convincingly to the conclusion that SEL's conduct before the PTO with regard to the '636 [patent] is sufficiently culpable to warrant a finding of intent to deceive." App. 80a.

Moreover, the court found that the intent to deceive was conceived as a cover-up, part of a larger plan or scheme devised because SEL knew that one of its "potentially lucrative patent[s] was vulnerable" to being held unenforceable due to SEL's inequitable conduct before the PTO. App. 83a. Thus, SEL was found to have undertaken a plan to "remedy this problem" by "pursu[ing] a new patent on the same invention that would be immune from the same problems that infected" the prior patents. *Id.* Indeed, the court concluded that:

> The evidence demonstrates a sophisticated, subtle, and consistent effort to hide the ball from the PTO in a manner plainly at odds with an applicant's duty of candor, good faith, and honesty. The record, as a whole, simply contains too many instances of information withheld, and references mischaracterized, to reach any conclusion other than that the withholding and mischaracterizations were part of an intentional, not accidental or inadvertent, plan to mislead the PTO.

App. 85a.

In rejecting reconsideration, the district court confirmed that "[i]n finding inequitable conduct, [it had] concluded that SEL . . . deliberately attempted to conceal the true significance of [cited references] to ensure the issuance of the '636 patent." App. 94a-95a. The district court also found an independent and additional basis for the unenforceability of the '636 patent, namely SEL's inequitable conduct in the prosecution of other, related patents. App. 103a.

D. The Federal Circuit Proceedings

SEL appealed the inequitable conduct judgment and Samsung cross appealed the dismissal of its federal and state

RICO claims.[9] The Federal Circuit affirmed, but upheld the district court's rulings on Samsung's RICO claims in part on different grounds. App. 2a.

Like the district court, the Federal Circuit appreciated the broad scheme of fraud that Samsung had alleged by acknowledging that:

> Samsung claims that this fraud resulted in the improper issuance of the three originally asserted patents, which SEL in turn has employed to extort Samsung and others. Although Samsung concedes that the direct fraud was perpetrated upon the PTO, Samsung asserts that it was the indirect but intended victim of this scheme.

App. 19a. Notwithstanding that allegation, the court of appeals accepted the paradigm that, in order to satisfy the mail fraud statute, the PTO must be deprived of "property" when it issues a patent. App. 21a-22a. The court of appeals rejected Samsung's contentions that a patent is more than a simple license, reasoning that, "[i]n this case, . . . the PTO has not been defrauded of property. . . . [A]n application that has not yet matured into a patent cannot properly be deemed government property." App. 21a-22a.

> In short, Samsung has failed to satisfy the predicate act requirement for its federal RICO counterclaims, as SEL's inequitable conduct did not "defraud" the government of any "property" under either the federal mail or wire fraud statutes. Consequently, we hold

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[9] The jurisdiction of the court of appeals was invoked under 28 U.S.C. §§ 1291 and 1295(a)(1) as an appeal from a final decision of a district court of the United States disposing of all claims with respect to all parties, including claims arising under the patent laws.

> that the district court properly granted summary judgment dismissing Samsung's federal RICO claims.

App. 22a.

After rejecting Samsung's federal RICO claims, the court of appeals also rejected Samsung's state RICO claims. *Id.* Rather than adopting the district court's position that the state claims could be dismissed on the same grounds as the federal claims, the court of appeals held Samsung's state law RICO claims were preempted by the federal patent laws. App. 25a. Ignoring the broad and pervasive scheme of fraud proved in the inequitable conduct trial, the court of appeals concluded that Samsung's state law claim of filing a false instrument alleged no more than simple bad faith conduct before the PTO. App. 26a.

Clearly the Federal Circuit feared that, if it allowed state RICO claims grounded in false filings "without more," then "every accused infringer asserting an inequitable conduct defense would also bring such a RICO counterclaim." *Id.* To avoid that result, the Federal Circuit compared Samsung's state RICO claims to the state law claims it had previously held to be preempted in other cases. App. 25a (citing *Abbott Lab. v. Brennan*, 952 F.2d 1346 (Fed. Cir. 1991) (state law claim of abuse of process preempted)). The court then concluded that a "state cause of action predicated so squarely on the acts of inequitable conduct would be 'contrary to Congress' preemptive regulation in the area of patent law.'" App. 26a. (quoting *Brennan*, 952 F.2d at 1357).

As the district court's reconsideration opinion established, however, this was no ordinary inequitable conduct case. Ignoring the proven scheme of multiple acts of

misconduct related to multiple patent applications, and the clear additional elements required to prove liability under Samsung's state RICO claims, the Federal Circuit peremptorily (and wrongly) concluded that both the predicate act and the state RICO claim brought by Samsung alleged no elements in addition to those needed to prove an inequitable conduct defense. App. 26a.

Samsung now petitions for a writ of certiorari to that portion of the Federal Circuit's opinion which rejects Samsung's federal and state RICO claims.

REASONS FOR GRANTING THE PETITION

There is a split among the circuits on whether unissued governmental grants such as licenses and franchises are "property" within the meaning of the mail fraud statute. The Court has recognized that split, and the license issue is presently before the Court in *Cleveland v. United States*.[10] The corollary issue of whether an unissued patent is "property," as decided by the Federal Circuit in this case, has been recognized by both the petitioner and an amicus in *Cleveland* to be a related and important question.[11] Samsung respectfully suggests that the issues presented in *Cleveland* and in this case are complementary and should be taken up by the Court, preferably together. The court of appeals erred

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[10] *See supra* n. 1.

[11] Brief for the Petitioner, at 12, 15, 21-22, *Cleveland v. United States* (filed in the Supreme Court June 1, 2000) (No. 99-804); Brief of the Chamber of Commerce of the United States as Amicus Curiae in Support of Neither Party, at 20-22, *Cleveland v. United States* (filed in the Supreme Court June 1, 2000) (No. 99-804) ("under the Government's theory of the mail fraud statute in this case, *Samsung* was apparently wrongly decided, and RICO liability for inequitable conduct before the PTO should obtain").

in this case, by simply equating the property rights involved in the issuance of any license with those affected by the grant of a patent. Unlike the issuance of a license, which can be a mere ministerial act, the grant of a patent requires more. With a patent, the government expends considerable resources and enters into a bargained-for exchange in which consideration flows from both sides. The scope of the government's property rights in an unissued patent may not be fully resolved by *Cleveland* and simultaneous consideration of the patent issue together with the license issue will provide an important dimension to, and a broader contextual framework for, the question already before the Court.

The Federal Circuit's preemption ruling violates preemption precedent which had properly struck the necessary balance between federal supremacy and state sovereignty. The Federal Circuit's ruling, which incorrectly assumed the Samsung's state law RICO claims allege no additional elements beyond those required to prove inequitable conduct, ignores the multiple acts of misconduct established in this case and the additional elements unrelated to inequitable conduct required to prove RICO offenses in general. Moreover, the Federal Circuit's superficial preemption analysis guts the states' right to safeguard the public by preventing pervasive schemes of fraud and providing civil remedies for those who have been victims of fraudulent schemes.

By affirming the dismissal of Samsung's federal RICO claims based on perceived flaws in Samsung's alleged predicate acts, the Federal Circuit implicitly adopted a rule requiring "convergence" in mail fraud, *i.e.*, that the target of the misrepresentation must be the victim of the fraud. Most circuits agree such convergence is not required. However, the Fourth Circuit, the Second Circuit (and now the Federal

Circuit) disagree. The mail fraud statute is used with great frequency in both criminal and civil proceedings across the United States and it should be uniformly interpreted as to the requirement of convergence. Indeed, conduct which is actionable under the mail fraud statute in one jurisdiction, will not be in another. The Court should resolve whether convergence is a required element of mail fraud and eliminate the present split among the circuit courts.

For the reasons set forth herein, Samsung's petition should be granted and the Federal Circuit's rulings that Samsung failed to present either federal or state law RICO claims should be reversed.

I. A PATENT IS "PROPERTY" WITHIN THE MEANING OF THE FEDERAL MAIL FRAUD STATUTE, 18 U.S.C. § 1341

The Federal Circuit's rejection of Samsung's RICO claims was sweeping, and completely forecloses the availability of RICO remedies to those involved in patent lawsuits. The court of appeals erroneously focused its analysis of Samsung's mail fraud claims on the nature of the property interests of the recipient of the misrepresentation – the PTO. The court ruled that the PTO could not be defrauded of money or property within the meaning of the mail fraud statute, because a patent was not "property" in the hands of the government prior to issuance. App. 22a. In justifying that result, the Federal Circuit likened the federal government's interest in issuing a patent to a state government's interest in issuing a license, a question which has been considered and which has split its sister circuits. *See infra*, part I. B.

The Federal Circuit made three key errors in its "unissued patents are not property" analysis. First, it

artificially focused the mail fraud inquiry on whether property was taken from one entity rather than fraudulently acquired by another. As the Third and Fifth Circuits have persuasively explained, such an analysis elevates form over substance in the interpretation of an act designed to offer broad protection against fraudulent schemes.

Second, the Federal Circuit ignored the breadth and complexity of the issues encompassed by the circuit split on unissued licenses, and therefore wrongly analogized the federal government's interest in issuing patents to a state government's interest in issuing licenses. It is error to group all licenses, franchises, patents, or permits in a single analytical category. Governmental rights implicated by the issuance of permits can be significantly different from those arising from licenses or franchises. A state's interest in a license issued for purely regulatory purposes as a mere ministerial act (e.g., a dog license) is not the same as its interest in a license which affects public safety (e.g., medical licenses), manages a finite public resource (e.g., mineral license), or delivers an income interest to the government in the proceeds of the activity conducted under the license (e.g., video poker license). The "character" of the interest should control the analysis of whether its fraudulent acquisition falls within the ambit of the mail fraud statute.

Despite some similarities between an unissued permit or license and an unissued patent for purpose of the mail fraud statute, the patent question is significantly more complex and cannot be adequately resolved through simple analogy to licenses. In doing so, the Federal Circuit ignored the wealth of its own, and this Court's, well reasoned opinions which show that, during the patent application process, the government has a direct and concrete right (albeit intangible) in a yet-to-be-issued patent. When a

patent is procured through fraud on the PTO, the government is wrongfully deprived of that right.

A. Whether Property Is Fraudulently Acquired As Opposed To Fraudulently Taken Is An Artificial Distinction

The Federal Circuit's ruling on Samsung's RICO claims turned on whether a patent is property in the hands of the government prior to issuance. But that question mistakenly focuses the inquiry on whether property has been fraudulently lost – rather than fraudulently acquired. This artificial distinction has been rejected by the Fifth and Third Circuits.

In *United States v. Martinez*, 905 F.2d 709, 713 (3d Cir. 1990), a case considering the validity of a mail fraud conviction for the fraudulent acquisition of a medical license, the Third Circuit began its analysis by observing that a medical license unquestionably was property under state law (as indeed are patents), and was thus not a simple intangible right ineligible for protection against mail fraud under *McNally v. United States*, 483 U.S. 350 (1987). The court then rejected the artificial distinction between a fraudulent taking and a fraudulent acquisition:

> The statute, which proscribes "obtaining money or property," is broad enough to cover a scheme to defraud a victim of something that takes on value only in the hands of the acquirer as well as a scheme to defraud a victim of property valuable to the victim but valueless to the acquirer.

905 F.2d at 713. The court also rejected the contention that the government, in a case like this, acts merely as a regulator – granting simply a promise not to interfere. Instead, "the government's interest here is . . . that of the dispenser of

valuable property in which the licensee has constitutionally protected property interests and which the government may enjoin upon misuse." *Id.* at 715. The Third Circuit rejected "artificial constructs and fleeting distinctions" and read the mail fraud statute as "broadly protecting property interests, and [which] purpose is served in protecting the Commonwealth's interests as the holder of valuable medical licenses from fraudulent conduct depriving it of such property." *Id.*

The Fifth Circuit agreed with *Martinez* in *United States v. Salvatore*, 110 F.3d 1131 (5th Cir. 1997) (upholding mail fraud convictions for fraud in an application for video poker licenses),[12] likewise rejecting the artificial distinction between property acquired and property taken. In addition, the Fifth Circuit recognized that the broad interpretation given to property under the mail fraud statute[13] extended to the "right to control," an incident of property exercised by the government upon the issuance of a license. *Id.* at 1140 ("the right to use and dispose of an object is the right to control that object – and in the case of licenses, the right to control their issuance").

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[12] *Salvatore* is the leading Fifth Circuit case on unissued licenses as property and is the precedent on review in *Cleveland v. United States* which is presently before the Court. *See supra* n.1.

[13] A broad definition of property for purposes of the mail fraud statute has been acknowledged by other circuits, notwithstanding their disagreement on the "unissued license" question. The Fourth Circuit has acknowledged "the common sense notion that property is anything in which one has a right that could be assigned, traded, bought, and otherwise disposed of." *United States v. Adler*, 186 F.3d 574, 576 (4th Cir. 1999) (internal quotation omitted) (analogizing the mail fraud statute to the bank fraud statute, but holding alleged victim of wire fraud did not, as a creditor, have property right in any particular fund). That broad definition of property is appropriate in the application of the mail fraud statute in this case.

The Federal Circuit has already admitted, as indeed it must, that a patent is property in the hands of the patentee. App. 22a. Its artificial focus in this case on the distinction between a patent not being property in the hands of the government versus being property when issued to patentee should be rejected for purposes of the fraud statute.

B. The Character Of The Governmental Grant Should Determine Whether It Is "Property" Under The Mail Fraud Statute, 18 U.S.C. § 1341

The Federal Circuit next erred when it analogized unissued patents to unissued licenses and assumed that all governmental grants should be treated uniformly.

The circuits are split on whether an unissued license is property of the government subject to the mail fraud statute. Some circuits have held that licenses are property for purposes of the mail fraud statute. *See, e.g., United States v. Martinez*, 905 F.2d 709, 713 (3d Cir. 1990) (medical licenses), *United States v. Salvatore*, 110 F.3d 1131, 1143 (5th Cir. 1997) (video poker licenses); *United States v. Bucuvalas*, 970 F.2d 937, 945 (1st Cir. 1992) (liquor licenses).

Other circuits have reached the opposite result. *See, e.g., Toulabi v. United States*, 875 F.2d 122, 125 (7th Cir. 1989) (taxicab licenses); *United States v. Murphy*, 836 F.2d 248, 253-54 (6th Cir. 1988) (charitable bingo license); *United States v. Dadanian*, 856 F.2d 1391, 1392 (9th Cir. 1988) (gambling licenses); *United States v. Shotts*, 145 F.3d 1289, 1296 (11th Cir. 1998) (bail bond license), *cert. denied*, 525 U.S. 1177 (1999); *United States v. Granberry*, 908 F.2d 278, 280 (8th Cir. 1990) (school bus operator's permit); *Mylan Lab., Inc. v. Matkari*, 7 F.3d 1130, 1137 (4th Cir. 1993) (FDA

approval); *United States v. Schwartz*, 924 F.2d 410, 417 (2d Cir. 1991) (export licenses).

Whether expressly acknowledged by the circuits or not, the real question in these cases is the one the Fifth Circuit identified – "a state's property interest in its licenses derives at least in part from the character of the licenses themselves." *Salvatore*, 110 F.3d at 1141. It is thus critical to investigate the nature of the particular license or grant at issue. The license at issue in *Salvatore* was considered unique because of the income interest the state took in the proceeds of the licensee's activities. *Id.* Likewise, when the license or right conferred by the government is a franchise (a right that belongs to the government when conferred upon a citizen and a right that inheres in the sovereign power), its grant due to the applicant's fraud has been properly held subject to the mail fraud statute. *Borre v. United States*, 940 F.2d 215, 220 (7th Cir. 1991).

However, unissued licenses are not all the same. A government's interest in a license issued for purely regulatory purposes or that is issued as a mere ministerial act might not be the same as its interest in a license that, for example, affects public safety, the government's management of a public resource, or the government's income interest in the proceeds of the activity conducted under the license. When heightened property interests in the state are invoked, like income interests and franchises, they more easily satisfy the purposes of and hence should be subject to the mail fraud statute. This principle applies with even greater force to the important and unique area of patent rights.

C. Fraudulently Inducing The Issuance Of A Patent Can Violate The Mail Fraud Statute

A patent embodies property rights. *Hartford-Empire Co. v. United States*, 323 U.S. 386, 415 (1945) ("That a patent is property, protected against appropriation both by individuals and by government, has long been settled."). The Federal Circuit agrees. App. 22a. When those rights come into existence, and who holds those rights, are at issue here. The Federal Circuit's ruling could only have been reached by ignoring the unique "character" of patents and the unique attributes of the patent application process.

An inventor has a choice. He can keep and hold his invention as a trade secret, or he can reveal his work to the world. "Once an inventor has decided to lift the veil of secrecy from his work, he must choose the protection of a federal patent or the dedication of his idea to the public at large." *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 149 (1989). If the inventor chooses to seek the protection of the federal patent system, he enters into a "carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years." *Id.* at 150-51.

The patent application process is thus a bargained-for exchange in which consideration flows in both directions. Indeed, in order to issue a patent, "the public has paid the congressionally mandated price for [the future] disclosure." *Id.* at 152. One panel of the Second Circuit has commented that property rights arise in the government in just such a situation. In *United States v. Novod*, 923 F.2d 970, *rev'd in part on other grounds*, 927 F.2d 726 (2d Cir. 1991), a case considering the nature of the government's property interest in a fraudulently acquired permit, the panel recognized that

property rights arise when an applicant petitions the government for a permit:

> Without the agency's assent, the permit remains with the agency. The [application] process is tantamount to a contractual transaction where a buyer and seller agree on a mutually satisfactory exchange of consideration. . . . The bargained-for exchange, in essence, would have been permit for promise. Thus construed, the permit constitutes property within the reach of the fraud statutes.

Id. at 974.[14]

Moreover, the government's process for issuing a patent requires far more than a mere ministerial effort. Enormous resources are dedicated to ascertaining the validity of an application. This time, effort and expense, are additional reasons to recognize the government's property interest in a patent. *Cf. United States v. DeFries*, 43 F.3d 707, 711 (D.C. Cir. 1995) (commenting that value of property to its owner might be shown by the substantial commitment of resources to its creation).

The "price" the government pays for entering into the patent bargain includes, for example, investing time and resources in examining the application, granting a right of exclusion in exchange for the ultimate release of information, and subjecting itself to suit for infringement. *See* 28 U.S.C. § 1498. The government's interest when issuing a patent is

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[14] Notwithstanding the reasoning set forth so persuasively by the panel in *Novod* and its disagreement with the precedent in the Second Circuit, the panel was obligated to follow the precedent of its Circuit set out in *United States v. Schwartz*, 924 F.2d 410 (2d Cir. 1991), and therefore reversed the mail fraud conviction at issue. *United States v. Novod*, 923 F.2d 970, 972, *rev'd in part on other grounds*, 927 F.2d 726 (2d Cir. 1991).

more than simply regulatory. It results from an exchange of consideration between the government and the patentee. If the federal government is fraudulently induced to enter into and complete the terms of its bargain, it has been defrauded of property for purposes of mail fraud.

II. PATENT LAW SHOULD NOT PREEMPT NEW JERSEY STATE RICO CLAIMS

To foreclose all state law RICO claims related to patent lawsuits, and especially to avoid the reach of the New Jersey RICO act (which offers great flexibility for pleading and proof requirements of the enterprise and person elements of RICO), the Federal Circuit cursorily dismissed Samsung's state law RICO counterclaims as preempted by federal patent law. App. 25a.

The Federal Circuit has rejected field preemption when there is a substantial difference between the fields which the state and federal patent laws regulate. *Hunter Douglas, Inc. v. Harmonic Design, Inc.*, 153 F.3d 1318, 1335 (Fed. Cir. 1998) (rejecting field preemption by patent laws of state laws designed to regulate business affairs), *overruled in part on other grounds, Midwest Indus., Inc. v. Karavan Trailers, Inc.*, 175 F.3d 1356 (Fed. Cir. 1999) (*en banc*). "A state law is not per se preempted unless every fact situation that would satisfy the state law is in conflict with federal law." *Id.* Indeed, the Federal Circuit has recognized that "[b]y limiting the extent of preemption to those instances when the application of state law would conflict with federal law, this approach best respects the states' sovereign nature." *Id.* Yet, despite its stated preference for conflict preemption, the Federal Circuit's decision here effectively preempts the entire field of state law RICO claims as they might relate to patents, and does so in a case where the proven facts

establish an organized scheme of fraud far exceeding a typical inequitable conduct case.

The Federal Circuit wrongly characterized Samsung as having alleged and proven no more than bad faith conduct before the PTO in a single application or instance. App. 26a. On that basis, the Federal Circuit declared that, as applied by Samsung, the New Jersey RICO act "does not contain as necessary elements of the offense the sorts of acts beyond misrepresentations or willful omissions to the PTO." *Id.* The court concluded that, "[t]o satisfy the predicate act requirement (and indeed all requirements) of the state RICO statute, Samsung alleges only the act of filing a false statement." *Id.*

Proof of a RICO violation under New Jersey law clearly requires proof of a number of elements in addition to simple bad faith conduct before the PTO. *See, e.g.*, N.J. Stat. Ann. § 2C:41- 2 (*e.g.*, prohibiting engagement in a pattern of racketeering activity), App. 130a. Moreover, while filing a false instrument alone might amount to bad faith conduct before the PTO, much more was alleged and proven here. App. 85a. As the Federal Circuit itself has previously held, as long as the element of bad faith is shown and the additional elements of proof are met, it is of no moment that the state law offense could be proven without bad faith:

> Of course, neither fraud nor bad faith need be a required element of a state law tort for that cause of action to stave off preemption by federal patent law, because a plaintiff could prove fraud or bad faith for a tort that not only would be met by such a showing of proof, but also would be satisfied by less. Although to state and maintain a claim under a state law tort, a plaintiff may not be required to allege or prove that the patentholder perpetrated fraud before the PTO or

> acted in bad faith in the marketplace, to escape preemption, the plaintiff would need to allege and prove ultimately such conduct.

Hunter Douglas, 153 F.3d at 1336-37. The Federal Circuit was wrong to reject Samsung's predicate offense by suggesting it simply mirrored the conduct needed to establish an ordinary inequitable conduct defense in a patent case. As pled and proven, Samsung showed extreme and outrageous conduct on the part of SEL which exceeded ordinary inequitable conduct and could easily satisfy the additional elements of RICO. App. 85a.[15]

Moreover, the Federal Circuit's emphasis on the predicate act was wrong. There can be no doubt that the gravamen of the RICO violation is "not the commission of the underlying predicate act, but rather the participation in an enterprise that engages in a pattern of racketeering activity." *State v. Ball*, 632 A.2d 1222, 1262 (N.J. Super. Ct. App. Div. 1993), *aff'd*, 661 A.2d 251 (N.J. 1995). The unusual circumstance here of a patent holding company that has engaged in an ongoing scheme to fraudulently obtain patents for the purpose of extorting money from industry is the type of situation where RICO should be applied to protect both the targets of the scheme as well as the public which ultimately suffers from higher prices and more limited availability of products.

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[15] *Cf. Neumann v. Vidal*, 710 F.2d 856, 860 (D.C. Cir. 1983) (not directly addressing preemption, but allowing a state law abuse of process claim based on filing before the PTO where such filing was designed to accomplish some end the "process" was not intended to accomplish). It cannot in good faith be argued here that the patent application process was intended to sanction or to provide exclusive remedies for SEL's conduct in this case.

To support its reasoning, the Federal Circuit additionally commented that it would reject attempts "to contort the elements of inequitable conduct to satisfy the New Jersey RICO statute, with its stated purpose of combating organized crime." App. 27a. But, New Jersey RICO does not focus exclusively on organized crime activities. Like the federal RICO act, New Jersey RICO is directed at "organized crime and similar activities . . . that drain[] millions of dollars from [New Jersey's] economy by unlawful conduct and the illegal use of force, fraud and corruption." N.J. Stat. Ann. § 2C:41-1.1.b (declaration of policy and legislative findings), App. 129a. Thus, there are no prudential considerations militating against applying the New Jersey RICO act in this case.

Finally, the Federal Circuit acknowledged, but gave no weight to Samsung's argument that it had no adequate remedy for the conduct at issue unless it was allowed to pursue its RICO claims. App. 24a. Before the Federal Circuit, Samsung cited its design-around costs, loss of goodwill, and legal costs as being unrecoverable under the patent laws, even when it prevailed on its inequitable conduct defense. App. 19a, 24a. Since the Federal Circuit's decision, Samsung's argument has gained more force. Having been released of any potential RICO liability for its fraudulent scheme, SEL has again sued Samsung, alleging that the same products involved in this case infringe on a patent closely related to the '636 patent.[16]

In the absence of an affirmative remedy for this continued scheme of fraud, Samsung will be forced to address each of SEL's fraudulently acquired patents, one by one, rather than addressing the pervasive scheme of fraudulent conduct perpetrated by SEL as the single, unitary

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[16] *Semiconductor Energy Laboratory Co. Ltd. v. Samsung Electronics Co. Ltd.*, Case No. 1:00CV00750 (D. D.C.) (filed April 7, 2000).

scheme that it is. Moreover, the remedy for inequitable conduct is only that the patent is declared unenforceable (and possibly a defendant may recover attorneys' fees), Samsung is not compensated for its damages; civil RICO exists so that a plaintiff can recover those losses in appropriate cases like this one.

This Court has explained that a state law is preempted only when it "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress." *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941). Preemption is particularly unwarranted in this case because nothing in the pursuit of a RICO violation stands as an obstacle to the federal patent laws or to the judicially-created defense of inequitable conduct. The federal patent laws were not designed to remedy the kind of conduct at issue in this case – a sophisticated and subtle scheme to defraud – nor are the federal patent laws undermined by pursuit of an independent remedy which is specifically designed to deal with this kind of fraud.

Resolution of whether an orchestrated scheme of misrepresentations made in patent applications, made under the circumstances alleged and proven in this case, can support a mail fraud predicate act to a RICO violation is important. Hundreds of thousands of patent applications are made each year, and the patent application process depends on the candor and utmost good faith of patent applicants. App. 7a. In most cases, violations of that duty will be handled by the inequitable conduct defense. But, if a patent applicant undertakes the egregious conduct shown in this case and the remedies available under the patent laws cannot make the victims of the scheme whole, the victims should be allowed to pursue RICO claims. The federal law of preemption should not be used to hold otherwise.

III. "CONVERGENCE" SHOULD NOT BE A REQUIRED ELEMENT OF THE MAIL FRAUD STATUTE

When the Federal Circuit disposed of Samsung's RICO claims solely on the basis of the government's interest in a patent prior to issuance, it was implicitly holding that a mail fraud claim could not be stated when misrepresentations are directed to one entity in order to target another entity as the victim of the fraud.[17] In so ruling, the court rejected the reasoning of a majority of circuits and engrafted elements onto the mail fraud offense that are neither expressly nor impliedly part of the statute and which are contrary to the plain language which permits prosecution of broad "schemes" of fraud.

As early as 1896 this Court considered the reach of the federal mail fraud statute in *Durland v. United States* and directed that it be construed to effectuate its purpose of "protecting the public against all . . . intentional efforts to despoil." 161 U.S. 306, 314 (1896) (considering whether false representations regarding future conduct fall within the ambit of the mail fraud statute). Indeed, the Court recognized that the key to determining the reach of the mail fraud statute is "the evil sought to be remedied" and directed that the statute should not be construed so narrowly as to "strip it of value." *Id.* at 313, 314.

Following the rationale that the mail fraud statute should be interpreted broadly to effectuate its purposes, a majority of circuits have rejected the notion of convergence. For example, the First Circuit expressly considered the

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[17] As discussed previously, Samsung alleged a broad and disseminated scheme of fraud which directed misrepresentations to the PTO for the purpose of defrauding the PTO, Samsung and others.

question of convergence in *United States v. Christopher*, 142 F.3d 46 (1st Cir.), *cert. denied*, 525 U.S. 1054 (1998). The case involved false statements made to insurance regulators to obtain approval to perform certain transactions which then enabled the defendants to deprive insurance companies of property and to place policyholders in jeopardy. *Id.* at 54. The court upheld the defendant's mail fraud conviction, even though the misrepresentations were not directed at the victims of the fraud.

> Nothing in the mail and wire fraud statutes requires that the party deprived of money or property be the same party who is actually deceived. The phrase 'scheme or artifice ... for obtaining money or property by means of false or fraudulent pretenses, representations, or promises,' 18 U.S.C. § 1341, is broad enough to include a wide variety of deceptions intended to deprive another of money or property.

Id. Indeed, the court recognized that when the role of a government regulator is "to protect the monetary interests of others, a scheme to mislead the regulator in order to get at the protected funds will affect 'property rights.'" *Id.*

Other circuits have adopted a similar rationale. *See, e.g., United States v. Blumeyer*, 114 F.3d 758, 766-67 (8th Cir. 1997) (a defendant who makes false representations to a regulatory agency in order to acquire a Certificate of Authority to operate an insurance agency which then causes harm to policyholders and others is guilty of mail fraud),[18]

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[18] The Eighth Circuit reached this result, notwithstanding its conclusion that obtaining a certificate/license by fraud might not, by itself, constitute fraud. *United States v. Blumeyer*, 114 F.3d 758, 767 (8th Cir. 1997). The court concluded that using the fraudulently acquired certificate to injure others would fall within the ambit of the mail fraud statute. *Id.* at 767-68; *see also*, *United States v. Granberry*, 908 F.2d 278, 280 (8th Cir. 1990)

United States v. Cooper, 132 F.3d 1400, 1405 (11th Cir. 1998) (upholding conviction based on deception of insurance regulators that harmed policyholders), *cert. denied*, 525 U.S. 1072 (1999); *United States v. Cosentino*, 869 F.2d 301, 307 (7th Cir. 1989) (mail fraud conviction upheld where misrepresentations to department of insurance permitted an agency to remain in business and thereby cause loss of money or property to victims).

Indeed, only the Fourth, Second Circuit (and now the Federal Circuit) have reached contrary results. *See Mylan Lab., Inc. v. Akzo, N.V.*, 770 F. Supp. 1053, 1074 (D. Md. 1991) ("the person allegedly deceived by the misrepresentations [must] be the person injured by the misrepresentations");[19] and *United States v. Evans*, 844 F.2d 36, 39-40 (2d Cir. 1988) (noting in dictum that party deceived must lose money or property).

The most effective schemes of fraud will often be the most disseminated – it is far harder to identify and protect against frauds when the misrepresentations are directed at one entity and the results of the fraud are intended to be, and are, felt by another. If the Court allows the minority view's requirement of convergence to stand, it will send a message to perpetrators of fraud that, as long as they make their

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(use of fraudulently acquired bus drivers' license to defraud school out of money or property upheld, but conviction that state was defrauded into issuance not upheld).

[19] The Fourth Circuit commented on this holding in a related case and apparently affirmed the requirement of convergence when it said "we affirm a ruling that precludes Mylan from relying on, as its sole basis for the predicate acts in its RICO counts, the theory that the FDA was defrauded out of its ANDA approvals within the meaning of the mail and wire fraud statutes." *Mylan Lab., Inc. v. Matkari*, 7 F.3d 1130,1137 (4th Cir. 1993).

misrepresentations far enough away from the true and intended targets of their fraud, they will be safe from prosecution. Such a result is neither expressly nor impliedly warranted under the language of the mail fraud statute and should not be the law.

CONCLUSION

For each of the above reasons, Samsung's petition for writ of certiorari should be granted.

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JULY 25, 2000

APPENDIX

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APPENDIX A

United States Court Of Appeals
For The Federal Circuit

Nos. 98-1377, 99-1103

SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.,
Plaintiff-Appellant,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., AND
SAMSUNG SEMICONDUCTOR, INC.,
Defendants-Cross Appellants.

Decided: March 2, 2000.

Before MICHEL, Circuit Judge, SKELTON, Senior Circuit Judge, and SCHALL, Circuit Judge.

MICHEL, Circuit Judge.

On October 10, 1996, Semiconductor Energy Laboratory Co., Ltd. ("SEL") sued Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively "Samsung") in the United States District Court for the Eastern District of Virginia, alleging that Samsung's production and sales of active matrix displays infringed SEL's U.S. Patent No. 5,543,636 ("the '636 patent") directed to semiconductor technology. The district court first granted SEL's motion for summary judgment dismissing Samsung's federal and New Jersey Racketeer Influenced and Corrupt Organizations ("RICO")

counterclaims. *See SEL v. Samsung*, 4 F. Supp. 2d 473 (E.D. Va. 1998) ("*SEL 1*"). After a seven-day bench trial, the district court also held the '636 patent to be unenforceable for SEL's inequitable conduct before the Patent and Trademark Office ("PTO"). *See SEL v. Samsung*, 4 F. Supp. 2d 477 (E.D.Va.1998) ("*SEL 2*"); *SEL v. Samsung*, 24 F. Supp. 2d 537 (E.D.Va.1998) ("*SEL 3*"). Both parties appeal. Because we are not persuaded that the district court either abused its discretion in holding the '636 patent unenforceable for inequitable conduct or improperly dismissed Samsung's federal and New Jersey RICO counterclaims, we affirm.

BACKGROUND

SEL is a Japanese company specializing in the research and development of semiconductor technology. SEL engages in no manufacturing and supports its research efforts from revenues from patent licensing. Since 1980, SEL has filed over 5,000 patent applications worldwide and has been awarded approximately 1,500 U.S. and foreign patents. Dr. Shunpei Yamazaki, a solid state physicist and the president and majority shareholder of SEL, is the named inventor or co-inventor on most of SEL's patents, including the '636 patent.

Entitled "Insulated Gate Field Effect Transistor" ("IGFET"), the '636 patent claims a non-single crystal silicon thin film transistor ("TFT"), a type of IGFET. Such TFTs can be used to switch the pixels in an active matrix display unit on or off. The TFT includes a source, a drain, a silicon nitride gate insulator, an insulated substrate, and an intrinsic amorphous silicon channel region. The channel region is "sandwiched" between the gate insulator and the insulated substrate. By limiting the level of oxygen, carbon, or nitrogen in the channel region to an amount not exceeding 5×10^{18} atoms/cm^3, the claimed invention greatly improves

the TFT's electrical properties and consequently overcomes potential deficiencies, such as hysteresis (blurring).

The application for the '636 patent was filed on June 7, 1995, and the ' 636 patent itself issued on August 6, 1996; SEL alleges a much earlier priority date of May 18, 1984, however. Gerard Ferguson, SEL's patent attorney, prosecuted the application for the '636 patent and its ancestor applications, except for a brief period when Dr. Yamazaki revoked his power of attorney because Mr. Ferguson sought to submit certain material prior art references to the PTO.

The '636 patent began as a former 37 C.F.R. § 1.60 (1995) ("Rule 60") divisional application, and thus had its own Information Disclosure Statement ("IDS").[1] The IDS, filed on November 15, 1995, was fifteen pages long. The IDS was accompanied by a Form PTO-1449 listing ninety references that it wished to make of record, each of which the examiner initialed. These references included Japanese Laid-Open Application No. 56-135968, assigned to Canon K.K. ("the Canon reference"). In the IDS, SEL submitted the entire 29- page Canon reference in its original Japanese, a concise explanation of its relevance, and an existing one-page partial English translation from a prior unrelated patent application. The concise explanation succinctly described the Canon reference as disclosing "the use of silicon nitride for a gate insulating layer of a thin film transistor." The one-page partial translation covered four short sections of the Canon reference describing a TFT structure, a semiconductor layer consisting of amorphous

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[1] Under former Rule 60, a divisional application included a copy of the previous application, but did not include the previous file wrapper. By contrast, a 37 C.F.R. § 1.62 (1995) ("Rule 62") continuation application required the application to "utilize the file wrapper and contents of the prior application." 37 C.F.R. § 1.62(e).

silicon, a gate electrode coated with silicon nitride, and an empirical observation of the effect of substituting silicon oxide for silicon nitride. SEL also made of record three references that a potential licensee, IBM, had brought to its attention as important prior art for obviousness purposes: a 1983 article by C.C. Tsai, entitled "Amorphous Si Prepared in a UHV Plasma Deposition System" ("the Tsai article"), and two of Dr. Yamazaki's solar cell patents, Japanese Patent Laid-Open Application Nos. 59-35423 ("the '423 application") and 59- 35488 ("the '488 application"). The Tsai article and the '423 and '488 applications all teach the reduction of impurities below the level claimed in the '636 patent.

On October 10, 1996, SEL filed a complaint in the United States District Court for the Eastern District of Virginia alleging that Samsung's active matrix displays and computers having such displays infringed three of SEL's semiconductor patents: the '636 patent, U.S. Patent No. 5,521,400 ("the '400 patent"), and U.S. Patent No. 5,349,204 ("the '204 patent").[2] Samsung denied infringement and asserted numerous affirmative defenses, including non-enablement, obviousness, best mode violation, and inequitable conduct. Samsung subsequently counterclaimed, charging SEL with federal and New Jersey RICO, antitrust, and unfair competition violations.

SEL moved for summary judgment on Samsung's inequitable conduct defense and on Samsung's RICO, antitrust, and unfair competition counterclaims. The district court granted SEL's motion on the RICO and antitrust

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[2] On March 4, 1998, SEL by stipulation amended its complaint to remove its allegations that Samsung was infringing the '400 and '204 patents, leaving the '636 patent the only patent-in-suit.

counterclaims, but denied it on the inequitable conduct defense and the unfair competition counterclaim.

After a seven-day bench trial, the district court found the '636 patent to be unenforceable for inequitable conduct under two alternative theories. First, the district court determined that, by submitting a concise explanation and a one-page partial translation of the Canon reference that were accurate but misleadingly incomplete, SEL had intentionally withheld the Canon reference from the PTO. *See SEL 2*, 4 F. Supp. 2d at 484. The concise statement, for example, identified only the silicon nitride gate as pertinent, and neglected to discuss the Canon reference's admonition to avoid impurities. Second, the district court determined that, by mischaracterizing the Tsai article as applying primarily to solar cells rather than TFTs in arguments to the PTO, SEL had intentionally misled the examiner into believing that the Tsai article was not material. *See id.* at 486.

The district court cited multiple facts as demonstrating SEL's deceitful intent. For example, Kunitaka Yamamoto, SEL's in-house patent agent could not satisfactorily account for his misstatement of the level of impurities discussed in U.S. Patent No. 4,766,477 to Nakagawa ("the Nakagawa reference") during the prosecution of U.S. Patent No. 5,315,132 ("the '132 patent"), which issued on an ancestor application to that of the '636 patent.[3] The district court similarly discredited Dr.

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[3] *SEL 2* provides a genealogy chart clarifying the relationships between the '132 patent, the '636 patent, and interim applications. See 4 F. Supp. 2d at 497. In short, the '636 patent resulted from a divisional application of U.S. Patent Application No. 425,455 ("the '455 application"), which in turn was a continuation of U.S. Patent Application No. 214,494 ("the '494 application"), which in turn was a divisional application of the application which resulted in the '132 patent.

Yamazaki's claim that he did not comprehend the significance of the Tsai article, since he had described a speech by Dr. Tsai discussing her work as "spectacular," had requested the article from Dr. Tsai in October 1983, and had cited it in a 1984 article in the Journal of Non-Crystalline Solids. Moreover, Dr. Yamazaki's own '423 and '488 applications had expressly stated that the benefits of the low levels of impurities in solar cells also applied to TFTs. Though Dr. Yamazaki had submitted the Tsai article and his '423 and '488 applications to the PTO during the prosecution of the application for the '636 patent and the '455 application, the district court noted that he did so only after IBM, a potential licensee, expressly called its attention to these references. Thus, the district court concluded that "[t]he evidence demonstrate[d] a sophisticated, subtle, and consistent effort to hide the ball from the PTO in a manner plainly at odds with an applicant's duty of candor, good faith, and honesty." *SEL 2*, 4 F. Supp. 2d at 496.

In response to SEL's motion to reconsider *SEL 2*, the district court issued a new opinion correcting its previous discussion of the Tsai article. *See SEL 3*, 24 F. Supp. 2d at 537. The district court recognized that SEL's misrepresentations with respect to the Tsai reference had actually occurred during SEL's prosecution of the '455 and '494 applications, the two applications immediately preceding the application that resulted in the '636 patent, and were not repeated during the prosecution of the application that resulted in the '636 patent. Relying upon a doctrine of "infectious unenforceability" discussed, but not applied, in *SEL 2*, 4 F. Supp. 2d at 493, however, the district court held that SEL's misrepresentations during the prosecution of the ancestor '455 and '494 applications provided an alternative basis for rendering the '636 patent unenforceable. *See SEL 3*, 24 F. Supp. 2d at 545.

DISCUSSION

I. Inequitable Conduct

Patent applicants are required to prosecute patent applications with candor, good faith, and honesty. *See Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178, 33 U.S.P.Q.2d 1823, 1826 (Fed. Cir. 1995). "[I]nequitable conduct includes affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Id.* The alleged infringer, whether a defendant in a patent infringement suit or a declaratory judgment plaintiff, must demonstrate by clear and convincing evidence both that the information was material and that the conduct was intended to deceive. *See id.*

The court first discerns whether the withheld references or misrepresentations satisfy a threshold level of materiality and whether the applicant's conduct satisfies a threshold showing of intent to deceive. *See id.* If these thresholds are satisfied, the trial court balances materiality and intent to determine whether the equities warrant the conclusion that inequitable conduct occurred. *See id.* at 1178, 48 F.3d 1172, 33 U.S.P.Q.2d at 1827. "In light of all circumstances, an equitable judgment must be made concerning whether the applicant's conduct is so culpable that the patent should not be enforced." *Id.*

We may reverse a determination of inequitable conduct only if it is based on "clearly erroneous findings of fact or on a misapplication or misinterpretation of applicable law, or evidences a clear error of judgment on the part of the district court." *Id.* We review the district court's subsidiary determinations of materiality and intent for clear error, and may disturb them only if we are left with "a definite and firm

conviction" that the district court committed a mistake. *Id.* We review a district court's ultimate determination of inequitable conduct under an abuse of discretion standard. *See id.*

A. Materiality

37 C.F.R. § 1.56 (1995) ("Rule 56") defines information as material to patentability when:

> [I]t is not cumulative to information already of record or being made of record in the application, and
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> (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
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> (2) It refutes, or is inconsistent with, a position the applicant takes in:
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> (i) Opposing an argument of unpatentability relied on by the Office, or
>
> (ii) Asserting an argument of patentability.

A withheld reference may be highly material when it discloses a more complete combination of relevant features, even if those features are before the patent examiner in other references. *Molins*, 48 F.3d at 1180, 33 U.S.P.Q.2d at 1828.

Reiterating many of its arguments before the district court, SEL contends that the untranslated portions of the Canon reference were not material to patentability because

they were cumulative to other information. More particularly, SEL alleges that the Canon reference only discloses a conventional IGFET device and generally teaches the avoidance of impurities on the surface of the intrinsic semiconductor layer. SEL also contends that the Canon reference, whether alone or combined with other references, would not have established a prima facie case of unpatentability, since it does not disclose the maximum impurity level of oxygen, nitrogen, or carbon in the channel region for overcoming the hysteresis problem.

We discern no clear error in the district court's finding that the Canon reference was material. The district court cited several reasons for finding the Canon reference to be material to patentability. First, the district court found that the Canon reference was not cumulative, since the untranslated portions of Canon contained a more complete combination of the elements claimed in the '636 patent than anything else before the PTO. Specifically, the Canon reference discloses the intrinsic amorphous silicon layer, the silicon nitride gate insulator, the sandwich structure, and the key admonition to avoid impurities in semiconductor materials, each of which is claimed by the '636 patent. Second, the district court found that the Canon reference established a *prima facie* case of unpatentability in combination with other information, particularly the teachings of the Tsai article or Dr. Yamazaki's own '423 or '488 applications. As Samsung's expert, Dr. Fonash, explained, a fully translated Canon reference would have provided a "good blueprint" for making the exact device described by the '636 patent. Consequently, taken together with the Tsai article, the Canon reference would have rendered obvious the asserted claims of the '636 patent.

B. Intent

"Intent need not be proven by direct evidence; it is most often proven by a showing of acts, the natural consequence of which are presumably intended by the actor." *Molins*, 48 F.3d at 1180, 33 U.S.P.Q.2d at 1828-29. "Generally, intent must be inferred from the facts and circumstances surrounding the applicant's conduct." *Id.* at 1180-81, 48 F.3d 1172, 33 U.S.P.Q.2d at 1829. "Since the fact-finder has personally heard and observed the demeanor of witnesses, we accord deference to the fact-finder's assessment of a witness's credibility and character." *Id.* at 1181, 48 F.3d 1172, 33 U.S.P.Q.2d at 1829.

Proof of high materiality and that the applicant knew or should have known of that materiality makes it difficult to show good faith to overcome an inference of intent to mislead. *See Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1257, 43 U.S.P.Q.2d 1666, 1669 (Fed. Cir. 1997). "The more material the omission or the misrepresentation, the lower the level of intent required to establish inequitable conduct, and vice versa." *Id.* at 1256, 120 F.3d 1253, 43 U.S.P.Q.2d at 1668. In evaluating whether the district court clearly erred in its factual finding of deceitful intent, we must assure ourselves that the district court did not overlook mitigating factors. *See Akron Polymer Container Corp. v. Exxel Container, Inc.*, 148 F.3d 1380, 1384, 47 U.S.P.Q.2d 1533, 1536 (Fed. Cir. 1998).

Again reiterating its arguments to the district court, SEL argues that it did not intend to mislead the examiner by submitting only a partial translation of the Canon reference and a concise statement not addressing its key teachings, such as its admonition to avoid impurities. SEL contends that Dr. Yamazaki subjectively believed that the Canon

reference was valuable only for its disclosure of the conventional IGFET structure.

As evidence of its good faith, SEL emphasizes that it submitted the entire Canon reference in its original Japanese. SEL also underscores the fact that it meticulously complied with 37 C.F.R. § 1.98(a),(c)[4] (1995) by providing an accurate, concise explanation of the relevance of the Canon reference and a pre-existing partial translation. SEL further claims that Manual of Patent Examining Procedure ("MPEP") § 609 establishes "permissive," "non-burdensome," "free of risk," and "gently suggestive at best, and certainly not mandatory" standards for foreign language references. For example, SEL notes that MPEP §

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4 Rule 98 ("Content of information disclosure statement") provides in pertinent part:

> (a) Any information disclosure statement filed under § 1.97 shall include:
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> ....
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> (3) A concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, of each patent, publication, or other information listed that is not in the English language. The concise explanation may be either separate from the specification or incorporated therein.
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> ....
>
> (c) ... If a written English-language translation of a non-English document, or portion thereof, is within the possession, custody, or control of, or is readily available to any individual designated in § 1.56(c), a copy of the translation shall accompany the statement.

(emphasis added.)

609 does not require that the applicant discuss differences between the cited information and the claims. *See* MPEP § 609A(3); *see also* Duty of Disclosure, 57 Fed. Reg. 2021, 2026, cmts. 24 & 26 (1992) (stating that Rule 56 does not require that applicant combine references against its own claims or analyze references.). According to SEL, its technical compliance with the PTO Rules should weigh against an inference of intent to deceive the examiner. *Cf. Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 939, 15 U.S.P.Q.2d 1321, 1327 (Fed. Cir. 1990) (holding that amendment made as of right under MPEP weighs against an inference of intent to deceive). As further proof of its good faith, SEL highlights the fact that it voluntarily provided the Canon reference to the PTO without any prodding from a licensee (e.g., IBM).

We discern no clear error in the district court's finding that SEL willfully misrepresented the Canon reference. As a general matter, we first note that the district court found Dr. Yamazaki and SEL's other witnesses to be not credible. Instead, the district court credited the testimony of Samsung's witnesses over that of SEL's whenever there was a conflict. The district court further found that Dr. Yamazaki, a solid state physicist whose native language is Japanese, understood the materiality of the Canon reference. The district court also determined that Dr. Yamazaki knew that a more complete translation or concise explanation of the relevance of the Canon reference would decrease the likelihood of the '636 patent being issued, given his understanding of the Canon reference and his immense experience in prosecuting patents. The district court thus concluded that Dr. Yamazaki must have consciously decided which sections to reveal to the PTO through SEL's partial translation.

Though SEL repeatedly highlights those actions that are not improper, SEL cannot overcome a finding of deceitful intent merely by showing that it did certain things properly. Rather, SEL must explain its conduct in failing to provide a more complete translation or concise explanation of the Canon reference. This it simply does not do. As the district court noted, "the record as a whole reflects a clear pattern and practice of initial disclosure, followed by incremental disclosure only when compelled by the circumstances to do so, followed, at times, by mischaracterization." *SEL 2*, 4 F. Supp. 2d at 496.

SEL's technical compliance with Rule 98 and its entreaty to MPEP § 609A(3) lend it little aid. Though Rule 98 requires that the applicant provide any existing translation of a foreign reference, Rule 98 provides neither a safe harbor nor a shield against allegations of inequitable conduct. As the district court explained, Rule 98 merely "provides a floor for required submissions of translations of foreign applications, not a ceiling; it is by no means an excuse or license for concealing material portions of a prior art reference." *SEL 3*, 24 F. Supp. 2d at 541. The district court found that Dr. Yamazaki knew that the Canon reference disclosed the important admonition to avoid impurities and that the preexisting, one-page partial translation did not discuss this teaching. Given the critical absence of this teaching from the partial translation and his knowledge of this absence, "[i]t was incumbent upon [Dr. Yamazaki] to provide the PTO with sufficient information for a reasonable examiner to consider the [submission] in context, not with a selective and misleading disclosure. The inventor[ ] failed to do that and cannot post facto hide behind the MPEP guidelines to argue that what [he] did with a purpose should be disregarded." *Refac Int'l, Ltd. v. Lotus Dev. Corp.*, 81 F.3d 1576, 1584, 38 U.S.P.Q.2d 1665, 1672 (Fed. Cir. 1996).

Similarly, MPEP § 609A(3) merely indicates that "[t]he concise explanation may indicate that a particular figure or paragraph of the patent or publication is relevant to the claimed invention. It might be a simple statement pointing to similarities between the item of information and the claimed invention." Thus, though MPEP § 609A(3) allows the applicant some discretion in the manner in which it phrases its concise explanation, it nowhere authorizes the applicant to intentionally omit altogether key teachings of the reference. If, as SEL suggests, the concise statement requirement allowed applicants to selectively disclose what they know as long as what they selected for disclosure was accurate, applicants could easily mislead the examiner by explaining all but one of the relevant elements, thereby leaving the examiner with the impression that the reference did not anticipate, render obvious, or otherwise make unpatentable the claimed invention.

C. Failure to Disclose

Finally, SEL contends that, because it submitted the entire untranslated Canon reference to the PTO, it cannot be deemed to have withheld the reference from the examiner. *See Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1582, 18 U.S.P.Q.2d 1001, 1015 (Fed. Cir. 1991) ("When a reference was before the examiner ..., it can not be deemed to have been withheld from the examiner."). SEL notes that the PTO does not require applicants to translate foreign references into English. *See* MPEP § 609C(2) ("The examiner should not require that a translation be filed by the applicant."). SEL thus claims that it cannot be faulted for not providing a more complete translation of the Canon reference.

SEL argues that the examiner, who is presumed to have done his job correctly, must also be presumed to have

read and understood the Canon reference in its native Japanese. *See Molins*, 48 F.3d at 1184, 33 U.S.P.Q.2d at 1832 (absent proof to the contrary, court assumed that examiner had considered a post- issuance, English-language submission under 37 C.F.R. § 1.501 that the examiner had initialed). SEL emphasizes that the PTO maintains a staff of translators and that an examiner "may request translations throughout the examination process." *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1582, 42 U.S.P.Q.2d 1378, 1386 (Fed. Cir. 1997).

We perceive no clear error in the district court's conclusion that SEL effectively failed to disclose the Canon reference to the PTO by providing a one-page, partial translation of the entire 29-page application. By submitting the entire untranslated Canon reference to the PTO along with a one- page, partial translation focusing on less material portions and a concise statement directed to these less material portions, SEL left the examiner with the impression that the examiner did not need to conduct any further translation or investigation. Thus, SEL deliberately deceived the examiner into thinking that the Canon reference was less relevant than it really was, and constructively withheld the reference from the PTO. SEL's submission hardly satisfies the duty of candor required of every applicant before the PTO.

SEL's contention that the examiner must have both read and fully understood the entire untranslated Canon reference based on his having read the misleadingly incomplete one-page translation and concise statement is absurd. Though the examiner is indeed presumed to have done his job correctly, there is no support in the law for a presumption that the examiner will understand foreign languages such as Japanese or will request a costly complete translation of every submitted foreign language document,

particularly in the absence of any reason to do so. Rather, as MPEP § 609C(2) reveals, the examiner's understanding of a foreign reference is generally limited to that which he or she can glean from the applicant's concise statement:

> Information which complies with requirements as discussed in this section but which is in a non-English language will be considered in view of the concise explanation submitted (A(3) above) and insofar as it is understood on its face; e.g., drawings, chemical formulas, in the same manner that non-English language information in Office search files is considered by examiners in conducting searches. The examiner need not have the information translated unless it appears necessary to do so. The examiner will indicate that the non-English language information has been considered in the same manner as consideration is indicated for information submitted in English. The examiner should not require that a translation be filed by applicant. The examiner should not make any comment such as that the non-English language information has been considered to the extent understood, since this fact is inherent.

(emphasis added). Consequently, while the examiner's initials require that we presume that he or she considered the Canon reference, this presumption extends only to the examiner's consideration of the brief translated portion and the concise statement.

SEL's contention that the PTO should not require applicants to translate all foreign references into English

misses the critical point. The duty at issue in this case is the duty of candor, not a duty of translation. The duty of candor does not require that the applicant translate every foreign reference, but only that the applicant refrain from submitting partial translations and concise explanations that it knows will misdirect the examiner's attention from the reference's relevant teaching. Here, the desirability of the examiner securing a full translation was masked by the affirmatively misleading concise statement and one-page translation.

Thus, we discern no clear error in the district court's findings with respect to materiality and intent, and hold that the district court did not abuse its discretion in finding the '636 patent to be unenforceable for SEL's inequitable conduct in providing a misleadingly incomplete, partial translation of the Canon reference and a narrow and incomplete concise statement. Given our holding that the '636 patent is unenforceable in light of SEL's inequitable conduct with respect to the Canon reference, we expressly decline to reach the district court's alternative determination of "infectious unenforceability" based on SEL's misconduct during the prosecution of the '455 and '494 applications.

II. Federal And New Jersey Rico Counterclaims

Samsung cross-appeals the district court's grant of summary judgment dismissing its federal and New Jersey RICO counterclaims. We review a grant of summary judgment without deference, reapplying the same legal standard as the district court to the same record before it and drawing all reasonable inferences in favor of the non-moving party, here Samsung. *See Ford Motor Co. v. United States*, 157 F.3d 849, 854 (Fed. Cir. 1998).

A. Federal RICO

The asserted sections of the federal RICO statute provide:

> (a) It shall be unlawful for any person who has received any income derived, directly or indirectly, from a pattern of racketeering activity ... to use or invest, directly or indirectly, any part of such income, or the proceeds of such income, in acquisition of any interest in, or the establishment or operation of, any enterprise which is engaged in, or the activities of which affect, interstate or foreign commerce.
>
> ....
>
> (c) It shall be unlawful for any person employed by or associated with any enterprise engaged in, or the activities of which affect, interstate or foreign commerce, to conduct or participate, directly or indirectly, in the conduct of such enterprise's affairs through a pattern of racketeering activity or collection of unlawful debt.

18 U.S.C. § 1962. Section 1962(a) makes it illegal to invest the income of racketeering activity. Section 1962(c), by contrast, makes it illegal to engage in racketeering activity. Section 1964(c) provides a person with a civil remedy for injuries to business or property from violations of Section 1962.

A RICO plaintiff must demonstrate a "pattern of racketeering activity" consisting of at least two instances of racketeering activity. 18 U.S.C. § 1961(5); *Mylan Labs., Inc. v. Matkari*, 7 F.3d 1130, 1135 (4th Cir.1993). Mail and wire fraud both qualify as predicate acts under the federal RICO statute. *See* 18 U.S.C. § 1961(1). The mail fraud statute makes illegal the use of U.S. mail for "any scheme or artifice to defraud, or for obtaining money or property by means of false pretenses." 18 U.S.C. § 1341 (emphasis added). Similarly, the wire fraud statute makes illegal the use of "wire, radio, or television communication" for "any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises." 18 U.S.C. § 1343.

Samsung alleges a "three-party pass-through fraud structure" wherein SEL committed numerous acts of mail and/or wire fraud on the PTO. Samsung first claims that, long before the '636 patent issued, SEL targeted Samsung as a defendant for a patent infringement suit. Samsung alleges that a competitor of Samsung, a "VIP" client of SEL, then agreed to pay SEL's litigation costs in its suit against Samsung. According to Samsung, SEL made material misrepresentations to the PTO using the U.S. mail and withheld material references from the PTO. Samsung claims that this fraud resulted in the improper issuance of the three originally asserted patents, which SEL in turn has employed to extort Samsung and others. Although Samsung concedes that the direct fraud was perpetrated upon the PTO, Samsung asserts that it was the indirect but intended victim of this scheme. As a result of this litigation, Samsung claims to have spent millions of dollars on legal fees and design-around efforts and to have sustained injury to its relationships with its customers, who sought assurances that Samsung will indemnify them against potential patent infringement liability claims brought by SEL.

The district court cited *Mylan Labs., Inc. v. Akzo, N.V.*, 770 F. Supp. 1053, 1071-73 (D.Md.1991), *aff'd sub nom. Mylan Labs., Inc. v. Matkari*, 7 F.3d 1130 (4th Cir.1993), as foreclosing inequitable conduct during patent prosecution from qualifying as a required predicate act. In *Akzo*, the RICO plaintiff alleged that the defendants committed predicate acts of mail fraud against the Food and Drug Administration ("FDA") in obtaining its approval of abbreviated new drug applications ("ANDAs"). The *Akzo* court ruled that ANDAs, as unissued licenses, were not property in the government's hands for mail fraud purposes, and thus the defendant's conduct before the FDA did not constitute predicate acts for purposes of the federal RICO statute. *See id.* at 1072-73. The district court viewed ANDAs and patents to be indistinguishable.

On appeal, Samsung distinguishes *Akzo* as involving licenses, in which the government has no financial interest and which therefore are not property. By contrast, under federal patent law and Supreme Court precedent, an issued patent constitutes property. *See* 35 U.S.C. § 261 ("[P]atents shall have the attributes of personal property."); *Hartford-Empire Co. v. United States*, 323 U.S. 386, 415, 65 S.Ct. 373, 89 L.Ed. 322 (1945). Samsung notes that 35 U.S.C. § 261 does not expressly distinguish between a patent in the hands of the patentee or the government. In fact, the federal government is subject to suit when it infringes a patent that it has granted. *See* 28 U.S.C. § 1498(a).

Alternatively, Samsung contends that a patent is actually more closely analogous to a franchise than a license. Whereas a license is a promise by the government not to interfere, *see Toulabi v. United States*, 875 F.2d 122, 125-26 (7th Cir.1989), a franchise is a right that belongs to the government when conferred upon a citizen and that inheres in the sovereign power, *see Borre v. United States*, 940 F.2d

215, 220 (7th Cir.1991). The Seventh Circuit has held that fraud in procuring a franchise is subject to the mail fraud statute. *See Borre*, 940 F.2d at 220. According to Samsung, a patent, like a franchise, enables its owner to exclude others, including the government.

We apply our own law to determine whether SEL's conduct before the PTO qualifies as mail fraud for purposes of the predicate acts requirement of the federal RICO statute. *See Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1574, 37 U.S.P.Q.2d 1626, 1631 (Fed. Cir. 1996) (holding that, though we do not have exclusive jurisdiction over unfair competition claims, our own circuit law nonetheless determines when inequitable conduct also constitutes unfair competition). We agree with the district court that inequitable conduct before the PTO cannot qualify as an act of mail fraud or wire fraud for purposes of the predicate act requirement. In the context of the mail fraud statutes, "the words 'to defraud' commonly refer 'to wronging one in his property rights by dishonest methods or schemes' and 'usually signify the deprivation of something of value by trick, deceit, chicane or overreaching.' " *McNally v. United States*, 483 U.S. 350, 358, 107 S.Ct. 2875, 97 L.Ed.2d 292 (1987) (quoting *Hammerschmidt v. United States*, 265 U.S. 182, 188, 44 S.Ct. 511, 68 L.Ed. 968 (1924)).[5] In this case, however, the PTO has not been

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[5] We note that, in 1988, Congress added 18 U.S.C. § 1346 in response to *McNally*. Section 1346 provides:

> For purposes of this chapter, the term "scheme or artifice to defraud" includes a scheme or artifice to defraud another of the intangible right of honest services."

On appeal, however, Samsung does not argue that SEL's conduct before the PTO was intended to "defraud another of the intangible right of honest services," and thus we do not address the possibility of such defrauding here.

defrauded of property. Although that "a patent is property, protected against appropriation both by individuals and by government, has long been settled," *Hartford-Empire*, 323 U.S. at 415, 65 S.Ct. 373, an application that has not yet matured into a patent cannot properly be deemed government property.

We also reject Samsung's attempt to analogize a patent to a franchise for purposes of the mail and wire fraud statutes. A franchise involves a transfer of extant rights previously held exclusively by the sovereign. *See California v. Central Pac.* R. Co., 127 U.S. 1, 40, 8 S.Ct. 1073, 32 L.Ed. 150 (1888). Examples of franchises include cable television and public utilities. *See Borre*, 940 F.2d at 220. By contrast, the patent right to exclude a party from practicing a particular invention is never held by the sovereign, but only by the patentee after issuance.

In short, Samsung has failed to satisfy the predicate act requirement for its federal RICO counterclaims, as SEL's inequitable conduct did not "defraud" the government of any "property" under either the federal mail or wire fraud statutes. Consequently, we hold that the district court properly granted summary judgment dismissing Samsung's federal RICO claims.

B. New Jersey RICO

The district court noted that the New Jersey RICO statute was modeled after the federal statute, *see State v. Ball*, 141 N.J. 142, 661 A.2d 251, 258 (N.J.1995), and that its relevant sections, N.J.S.A. § 2C:41-2(a), (c), also require proof of a pattern of racketeering activity. In view of its rejection of Samsung's mail and wire fraud allegations as predicate acts with respect to the federal RICO

counterclaims, the district court concluded that Samsung's New Jersey RICO counterclaims were similarly deficient.

On appeal, Samsung argues that racketeering under the New Jersey RICO Act includes New Jersey crimes as well as "equivalent crimes under the laws of any other jurisdiction," N.J.S.A. § 2C:41-1.a. Samsung notes that qualifying predicate acts under the New Jersey statute would include forgery and fraudulent practices, see N.J.S.A. § 2C:41-1.a(1)(o), offering a false instrument for filing, see N.J.S.A. § 2C:21-3.b, and making false statements to PTO examiners in violation of federal penal provisions such as 18 U.S.C. § 1001.[6] Samsung contends that the district court ignored these additional state and federal violations and hence improperly dismissed its state RICO claims.

SEL responds that, regardless of the expanded scope of predicate acts under the New Jersey RICO statute, we can still affirm the district court's dismissal of the New Jersey RICO claims on the alternative ground of federal preemption. In dismissing Samsung's federal RICO counterclaims, the district court suggested that RICO claims and the inequitable conduct defense are mutually exclusive remedies. The district court noted that the affirmative defense of inequitable conduct supplies an adequate remedy by rendering the patent

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6 18 U.S.C. § 1001 provides:

> Whoever in any matter within the jurisdiction of any department or agency of the United States knowingly or willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

unenforceable and possibly also entitling the alleged infringer to attorney fees under 35 U.S.C. § 285.

Samsung disputes that the federal patent laws preempt its state RICO counterclaims, noting that the patent statute nowhere expressly excludes RICO remedies. Samsung claims that SEL's misconduct is not a "garden-variety" instance of inequitable conduct, and emphasizes the Supreme Court's recognition of concurrent RICO and state law remedies for a single activity. *See Humana, Inc. v. Forsyth*, 525 U.S. 299, 303, 119 S.Ct. 710, 142 L.Ed.2d 753 (1999) (holding that the McCarran-Ferguson Act, which bars application of a federal law in the face of a state law enacted "for the purpose of regulating the business of insurance," did not preclude the concurrent assertion of the federal RICO statute and Nevada insurance law). Samsung also notes that the New Jersey RICO Act states that "[t]he remedies provided in this act shall be cumulative with each other and other remedies at law." N.J.S.A. § 2C:41- 6.1.

Samsung underscores the broad remedies available under the RICO statutes. With respect to monetary relief, the patent laws would permit only the recovery of attorney fees, while the New Jersey RICO statute would allow the prevailing plaintiff "threefold any damages he sustains and the cost of the suit, including a reasonable attorney's fee, costs of investigation and litigation." N.J.S.A. § 2C:41-4.c. Samsung asserts that its alleged damages, which include design-around costs and loss of goodwill, are a recognized form of RICO damages. *See, e.g., Khurana v. Innovative Health Care Sys., Inc.*, 130 F.3d 143, 150-51 (5th Cir.1997), cert. granted, judgment vacated, and case dismissed as moot, 525 U.S. 979, 119 S.Ct. 442, 142 L.Ed.2d 442 (1998).

Finally, Samsung analogizes its New Jersey RICO counterclaims to the state tort claims held not to be preempted in *Dow Chem. Co. v. Exxon Corp.*, 139 F.3d 1470, 46 U.S.P.Q.2d 1120 (Fed. Cir. 1998). In *Dow*, we held that the state law claim of intentional interference with actual and prospective contractual relationships was not preempted by federal patent law, even though the claim was based partly on acts of alleged inequitable conduct before the PTO. We reasoned that because the state cause of action also included elements not found in the patent infringement defense of inequitable conduct, but in the marketplace against inhabitants of the state, the state tort as applied was not an impermissible attempt to offer patent-like protection. *See id.* at 1477, 139 F.3d 1470, 46 U.S.P.Q.2d at 1126. Samsung claims that, like the state claim in *Dow*, its RICO counterclaims allege "additional elements not found in the federal patent law cause of action," *id.* at 1473, 139 F.3d 1470, 46 U.S.P.Q.2d at 1123, such as SEL's targeting of Samsung and its eventual filing of this lawsuit.

We agree with SEL that the federal patent laws preempt Samsung's New Jersey RICO counterclaims. As applied, the state RICO counterclaims in this case are more closely analogous to the state abuse of process counterclaim held to be preempted in *Abbott Labs. v. Brennan*, 952 F.2d 1346, 21 U.S.P.Q.2d 1192 (Fed. Cir. 1991), than the intentional interference with contractual relationship counterclaim in *Dow*. In *Abbott*, the applicant had committed inequitable conduct by backdating a request for an extension of time and falsely averring that the request had been timely made, resulting in his loss of priority. This court concluded that "the federal administrative process of examining and issuing patents, including proceedings before the PTO's boards, is not subject to collateral review in terms of the common law tort of abuse of process." *Id.* at 1357, 21 U.S.P.Q.2d at 1201.

Like the state abuse of process claim in *Abbott*, "the wrong alleged and for which state law tort damages [are] sought [is] no more than bad faith misconduct before the PTO." *Dow*, 139 F.3d at 1477, 46 U.S.P.Q.2d at 1126. As pleaded by Samsung, its New Jersey RICO counterclaims occupy a field identical in scope with the inequitable conduct defense. If the conduct constituting inequitable conduct, without more, could be considered predicate acts under federal or state RICO law, then every accused infringer asserting an inequitable conduct defense would also bring such a RICO counterclaim. An additional state cause of action predicated so squarely on the acts of inequitable conduct would be "contrary to Congress' preemptive regulation in the area of patent law." *Abbott*, 952 F.2d at 1357, 21 U.S.P.Q.2d at 1201.

Samsung's contention that its New Jersey RICO counterclaims allege additional elements not found in the federal patent law cause of action for inequitable conduct is inaccurate. Samsung conveniently ignores the distinction between acts that may be proven as part of a state RICO violation and those which must be proven for liability. As applied by Samsung, the New Jersey RICO statute does not contain as necessary elements of the offense the sorts of acts beyond misrepresentations or willful omissions to the PTO that Samsung alleges in this case. To satisfy the predicate act requirement (and indeed all requirements) of the state RICO statute, Samsung alleges only the act of filing a false statement, but this act completely overlaps with the alleged misrepresentations giving rise to its inequitable conduct defense. Samsung's additional allegations that SEL targeted and intended to assert the '400, '204, and '636 patents against Samsung even before these patents issued do not take Samsung's application of the New Jersey RICO statute outside of the ambit of the inequitable conduct defense. Every patent applicant files its application believing it could

assert the resulting patent against infringers (or else seeking the patent would be a worthless endeavor), and it is not unusual for a patent applicant to "target" potential defendants even before the patent issues. *Cf.* MPEP § 708.02(II) (allowing an applicant to file a Petition to Make Special to accelerate prosecution in view of actual infringement by another party). We therefore reject Samsung's attempts to contort the elements of inequitable conduct to satisfy the New Jersey RICO statute, with its stated purpose of combating organized crime. *See* N.J.S.A. § 2C:41-1.1.c.

Thus, we affirm the district court's grant of summary judgment dismissing Samsung's New Jersey RICO counterclaims as preempted by the patent laws of the United States.[7]

CONCLUSION

The district court did not abuse its discretion in holding the '636 patent unenforceable for inequitable conduct. The district court correctly applied the statute, regulations, and case law, and did not make clearly erroneous findings of fact on materiality and deceptive intent. Under all the circumstances of record, the court did not seriously misjudge the import of the evidence, particularly the degree

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[7] For a civil federal RICO claim under 18 U.S.C. § 1962(c), the RICO "enterprise" must be distinct from the RICO "person," *i.e.*, the defendant. *See Palmetto State Med. Ctr., Inc. v. Operation Lifeline*, 117 F.3d 142, 148 (4th Cir.1997). The district court also dismissed Samsung's federal and state RICO counterclaims on the ground that the alleged SEL "enterprise" consisting of SEL, Dr. Yamazaki, and Mr. Ferguson was insufficiently distinct from the SEL "person." Because we affirm the district court's dismissal of Samsung's respective federal and New Jersey RICO counterclaims as failing to allege a predicate act and as preempted under the circumstances of this case, we decline to reach the correctness of the district court's holding regarding this "enterprise" element.

of materiality as against the level of deceptive intent, in reaching the conclusion that equity warranted rendering the patent unenforceable. In addition, the district court correctly granted summary judgment dismissing Samsung's federal and New Jersey RICO counterclaims, the former as failing to allege legally adequate predicate acts, and the latter as preempted by the patent laws of the United States. Accordingly, we

AFFIRM.

APPENDIX B

United States Court Of Appeals
For The Federal Circuit

Nos. 98-1377, 99-1103

SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.,
Plaintiff-Appellant,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., AND
SAMSUNG SEMICONDUCTOR, INC.,
Defendants-Cross Appellants.

JUDGMENT

ON APPEAL from the U.S. District Court for the Eastern District of Virginia
in CASE NO(S). 96-CV-1460
This CAUSE having been heard and considered, it is ORDERED and ADJUDGED:

AFFIRMED.

ENTERED BY ORDER OF
THE COURT

DATED: Mar 02, 2000 /s/

JAN HORBALY, Clerk

ISSUED AS A MANDATE: May 4, 2000

APPENDIX C

NOTE: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public order.

United States Court Of Appeals For The Federal Circuit

Nos. 98-1377, 99-1103 (96-CV-1460)

SEMICONDUCTOR ENERGY
LABORATORY, CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO. LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

ORDER

A combined petition for rehearing and petition for rehearing en banc having been field by the APPELLANT, and the petition for rehearing having been referred to the panel that heard the appeal,

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for rehearing is granted for the limited and sole purposes of amending the opinion issued on March 2, 2000 as follows:

On the thirteenth line from the top of page 5, replace "Dr. Yamazaki" with "Kunitaka Yamamoto, SEL's in-house patent agent."

The petition for rehearing en banc is still pending.

FOR THE COURT
/s/
Jan Horbaly
Clerk

Dated: March 29, 2000

cc: J. Alan Galbraith, Esq.
David J. Healey, Esq.

APPENDIX D

CORRECTED

United States Court of Appeals for the Federal Circuit

Nos. 98-1377, 99-1103 (96-CV-1460)

SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.,
Plaintiff-Appellant,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., AND
SAMSUNG SEMICONDUCTOR, INC.,
Defendants-Cross Appellants.

NOTE: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public order.

ORDER

A combined petition for rehearing and petition for rehearing en banc having been filed by the APPELLANT, and the petition for rehearing having been referred to the panel that heard the appeal,

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for rehearing is granted for the limited and sole purpose of amending the opinion issued on March 2, 2000 as follows:

On the last line of page 5, replace "Dr. Yamazaki" with "Kunitaka Yamamoto, SEL's in-house patent agent."

The petition for rehearing en banc is still pending.

FOR THE COURT
/s/
Jan Horbaly
Clerk

Dated: April 5, 2000
cc: J. Alan Galbraith, Esq.
David J. Healey, Esq.

APPENDIX E

United States Court of Appeals for the Federal Circuit

Nos. 98-1377, 99-1103 (DCT – 96 - CV-1460)

SEMICONDUCTOR ENERGY
LABORATORY CO., LTD.,
Plaintiff-Appellant,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC., AND
SAMSUNG SEMICONDUCTOR, INC.,
Defendants-Cross Appellants.

ORDER

A combined petition for rehearing* and petition for rehearing en banc having been filed by the APPELLANT, and a response thereto having been invited by the court and filed by the CROSS-APPELLANTS, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc and response having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

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* The petition for rehearing was granted by separate order on March 29, 2000 to amend the opinion issued on March 2, 2000.

ORDERED that the petition for rehearing en banc be and the same hereby is, DENIED.

The mandate of the court will issue on May 3, 2000.

Circuit Judge Linn did not participate in the vote.

FOR THE COURT
/s/
Jan Horbaly
Clerk

Dated: April 26, 2000

cc: J. Alan Galbraith, Esq.
David J. Healey, Esq.

Note: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public record.

APPENDIX F

United States District Court, E.D. Virginia, Alexandria Division.

No. CIV. A. 96-1460-A.

SEMICONDUCTOR ENERGY LABORATORY CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants

March 20, 1998

MEMORANDUM OPINION

CACHERIS, District Judge.

This case is before the Court on Plaintiff's Motion for Summary Judgment on Defendants' Racketeer Influenced and Corrupt Organizations ("RICO") Counterclaims.

I.

Plaintiff, Semiconductor Energy Laboratory Co., Ltd. ("SEL") originally alleged that Defendants Samsung Electronics Company, Samsung Electronics America, and Samsung Semiconductor, Inc. (collectively "Samsung") infringed three of its patents. SEL has since dismissed its

claims as to two of the patents. Samsung filed a counterclaim alleging antitrust violations as well as violations of Title IX of the Organized Crime Control Act of 1970, 18 U.S.C. Sections 1961-1968, or the RICO statute, and its New Jersey counterpart, New Jersey Statute 2C:41-2. Samsung argues that SEL fraudulently obtained the three patents originally at issue in this lawsuit and then filed infringement claims against Samsung in an effort to receive money for the patents.

II.

Summary judgment is appropriate only if "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986); Fed. R. Civ. P. 56(c). "A district court must grant summary judgment if, after an adequate time for discovery, a party fails to make a showing sufficient to establish the existence of an essential element of that party's case." *Baber v. Hospital Corp. of Am.*, 977 F.2d 872, 874 (4th Cir.1992). However, a court may only grant a summary judgment motion "if the non-movant failed to make a sufficient showing on an element on which he had the ultimate burden of proof." *Brock v. Entre Computer Ctrs., Inc.*, 933 F.2d 1253, 1259 (4th Cir.1991).

"The mere existence of a scintilla of evidence in support of the [party's] position will be insufficient; there must be evidence on which the jury could reasonably find for th[at] [party]." *Anderson*, 477 U.S. at 252. In reviewing the evidence submitted by the parties, "the court must draw any inferences in the light most favorable to the non-movant." *Brock*, 933 F.2d at 1259. The court must ultimately

"determine whether the record taken as a whole could lead a reasonable trier of fact to find for the non-movant." *Id.*

III.

Samsung claims that SEL violated 18 U.S.C. Section 1962(a) and (c).[1] To prove RICO violations, the RICO plaintiff must demonstrate a "pattern of racketeering activity" which must consist of at least two instances of racketeering activity. 18 U.S.C. § 1961(5); *Mylan Lab., Inc. v. Matkari*, 7 F.3d 1130, 1135 (4th Cir.1993). In this case, Samsung asserts a "three-party pass-through fraud structure", arguing that SEL committed numerous acts of mail and/or wire fraud[2] on the United States Patent and Trademark Office ("PTO") which resulted in approval of certain patent applications. According to Samsung, SEL then sought money from Samsung and others by threatening them with litigation over these fraudulently obtained patents. Put another way, Samsung claims that SEL defrauded the PTO,

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1 Section 1962(a) and (c) state:

> (a) It shall be unlawful for any person who has received any income derived, directly or indirectly, from a pattern of racketeering activity ... to use or invest, directly or indirectly, any part of such income, or the proceeds of such income, in acquisition of any interest in, or the establishment or operation of, any enterprise which is engaged in, or the activities of which affect, interstate or foreign commerce.
>
> (c) It shall be unlawful for any person employed by or associated with any enterprise engaged in, or the activities of which affect, interstate or foreign commerce, to conduct or participate, directly or indirectly, in the conduct of such enterprise's affairs through a pattern of racketeering activity[.]

2 *See* 18 U.S.C. §§ 1341, 1343.

but the intended, albeit indirect, victim of the fraud is Samsung.

Mail and wire fraud are both predicate acts of racketeering activity for RICO purposes. 18 U.S.C. § 1961(1). However, SEL argues that the PTO cannot be "defrauded" of approval of patent applications under the federal mail and wire fraud statutes. Specifically, SEL argues that the PTO does not lose money or property when it grants a patent, therefore, in granting a patent, the PTO cannot be the victim of mail or wire fraud.

In support, SEL cites *Mylan Lab., Inc. v. Akzo, N.V.*, 770 F. Supp. 1053, 1071-73 (D.Md.1991). In that case, the RICO plaintiff alleged that the defendants committed predicate acts of fraud against the Food and Drug Administration ("FDA") in obtaining FDA approval of their abbreviated new drug applications ("ANDAs"). The District of Maryland ruled that an unissued license is not property in the government's hands for fraud purposes, therefore, the defendants' conduct before the FDA did not amount to predicate acts under RICO.[3] *Mylan Lab., Inc. v. Akzo, N.V.*, 770 F. Supp. at 1072-73. Although the Fourth Circuit reversed a related decision in *Mylan Lab., Inc. v. Matkari, supra*, it expressly stated "[W]e affirm a ruling that precludes Mylan from relying on, as its sole basis for the predicate acts

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[3] The court declined to follow the Third Circuit's decision on this issue in *United States v. Martinez*, 905 F.2d 709, 715 (3rd Cir.1990), and instead followed the decisions of the First, Second, Sixth, Seventh, Eighth and Ninth Circuits. *Mylan Lab., Inc. v. Akzo, N.V.*, 770 F. Supp. at 1072 (citing, *e.g.*, *McEvoy Travel Bureau, Inc. v. Heritage Travel, Inc.*, 904 F.2d 786, 792-93 (1st Cir.1990), *United States v. Schwartz*, 924 F.2d 410, 417 (2nd Cir.1991), *United States v. Murphy*, 836 F.2d 248, 254 (6th Cir.1988), *Toulabi v. United States*, 875 F.2d 122, 125 (7th Cir.1989), *United States v. Granberry*, 908 F.2d 278, 280 (8th Cir.1990), *United States v. Kato*, 878 F.2d 267, 268-69 (9th Cir.1989)).

in its RICO counts, the theory that the FDA was defrauded out of its ANDA approvals within the meaning of the mail and wire fraud statutes." *Mylan Lab., Inc. v. Matkari*, 7 F.3d at 1137.

In response, SEL argues that *Mylan Lab., Inc. v. Akzo, N.V.* and the cases it cites are distinguishable because they involved licenses, not patents, and patents involve valuable property interests. In addition, Samsung argues that by deceiving the PTO, SEL deprived Samsung and others of the "intangible right of honest services" in violation of the mail fraud statute. *See* 18 U.S.C. § 1346.

Samsung cites no cases which indicate that approval of a patent application by the PTO should be treated differently than approval of an ANDA by the FDA. In both cases, the United States confers certain rights, but it does not forfeit anything. Just as the FDA does not lose money or property when it grants a license, the PTO does not lose money or property when it issues a patent. In addition, Samsung makes no allegations and no evidence indicates that the PTO provided anything less than honest services or that SEL intended for them to provide dishonest services. Furthermore, there is no claim by Samsung that it had an intangible right to SEL's honest services.

Because SEL's alleged conduct before the PTO does not violate the federal mail and wire fraud statutes, that conduct cannot satisfy the predicate acts requirement under RICO. If such conduct could properly be considered predicate acts, then nearly every inequitable conduct claim in a patent case could be brought as a RICO claim. However, the Patent Act imposes a severe penalty for those who mislead or wrongfully withhold information in an attempt to obtain a patent: all claims in the patent will be rendered unenforceable. *See J.P. Stevens & Co., Inc. v. Lex Tex, Ltd.*,

Inc., 747 F.2d 1553, 1561 (Fed. Cir. 1984). Additionally, if Samsung can prove its allegations, not only will the patents at issue be rendered unenforceable, but Samsung may be entitled to attorney's fees pursuant to 35 U.S.C. Section 285. Through these provisions, the Patent Act provides appropriate remedies for the type of misconduct from which Samsung seeks to recover in its RICO claims.

In its counterclaim, Samsung alleges that SEL's fraudulent acts also include "numerous use of mail and/or wire fraud on Samsung and others [.]" Samsung's Amended Answer and Counterclaim, ¶ 117. However, while the evidence indicates that some companies own licenses to the relevant patents, Samsung has not provided evidence that SEL has committed mail or wire fraud with respect to Samsung or others. Rather, Samsung relies on the theory that SEL's alleged fraud on the PTO satisfies the predicate acts requirement. Because Samsung provides no evidence on which a jury could reasonably find the predicate acts necessary to sustain a RICO claim, SEL is entitled to summary judgment on this issue.

The New Jersey RICO statute is modeled after the federal statute, *State v. Ball*, 141 N.J. 142, 661 A.2d 251, 258 (1995), and the relevant sections, 2C:41-2(a) and (c), require proof of a pattern of racketeering activity. Samsung relies on the same predicate acts in support of its New Jersey RICO claim. Because those acts do not support a federal RICO violation, they fail to support a New Jersey RICO violation.

In addition, Samsung fails to satisfy the "enterprise" element of Section 1962(c). Samsung argues that the RICO enterprise consists of SEL, Dr Shunpei Yamazaki (SEL's president), and Gerald Ferguson (SEL's patent attorney). However, the Fourth Circuit has ruled that under Section 1962(c), the RICO enterprise and the defendant must be

distinct. *Palmetto State Med. Ctr., Inc. v. Operation Lifeline*, 117 F.3d 142, 148 (4th Cir.1997).

Samsung contends that SEL, Yamazaki, and Ferguson should be considered separate entities because each had a duty to the PTO, and Yamazaki and Ferguson committed independent acts of fraud on the PTO. However, "[B]y alleging a RICO enterprise that consists merely of a corporate defendant associated with its own employees or agents carrying on the regular affairs of the defendant, the distinctness requirement may not be circumvented." *Riverwoods Chappaqua Corp. v. Marine Midland Bank, N.A.*, 30 F.3d 339, 344 (2nd Cir.1994) (citations omitted); *see also Discon, Inc. v. NYNEX Corp.*, 93 F.3d 1055, 1063 (2nd Cir.1996)(attorneys acting on behalf of corporation are agents under Riverwoods Chappaqua Corp.).

SEL generates its income by obtaining and licensing patents. It does not manufacture or distribute any products. Samsung does not argue that Yamazaki or Ferguson acted beyond the scope of their agency when they committed the alleged misconduct. Therefore, because the RICO enterprise is not distinct from the RICO defendant in this case, SEL is entitled to summary judgment on Samsung's Section 1962(c) claims.

For these reasons, Samsung fails to make a showing sufficient to establish the existence of the essential elements of its RICO claims. Accordingly, SEL's Motion for Summary Judgment on Samsung's Racketeering Counterclaims is GRANTED.

An appropriate Order granting summary judgment in favor of SEL on Counts Six, Seven, Eight, and Nine of Samsung's counterclaim shall issue.

ORDER

In accordance with the accompanying Memorandum Opinion, it is hereby Ordered that:

1) Plaintiff Semiconductor Energy Laboratory Co., Ltd.'s Motion for Summary Judgment on Defendants Samsung Electronics Company, Samsung Electronics America, and Samsung Semiconductor, Inc.'s RICO Counterclaim is GRANTED as to Counts Six, Seven, Eight, and Nine; and

2) the Clerk shall forward copies of this Order and accompanying Memorandum Opinion to all counsel of record.

APPENDIX G

United States District Court, E.D. Virginia, Alexandria Division.

C.A. No. 96-1460-A.

SEMICONDUCTOR ENERGY LABORATORY CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC., AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

April 15, 1998.

MEMORANDUM OPINION

ELLIS, District Judge.

In this patent infringement action, plaintiff Semiconductor Energy Laboratory Co. ("SEL") alleges that defendants Samsung Electronics, Samsung Electronics America, and Samsung Semiconductor, (collectively "Samsung") made or sold active matrix display units that infringe SEL's U.S. Patent No. 5,543,636 ("the '636 patent"). Among its defenses to SEL's charge of infringement, Samsung alleges that the '636 patent is unenforceable owing to SEL's inequitable conduct before the Patent and Trademark Office ("PTO"). Between March 17, 1998 and April 3, 1998, a seven-day bench trial was held on

Samsung's affirmative defense of inequitable conduct, during which time the Court heard fact and expert opinion testimony from several witnesses, admitted into evidence numerous exhibits, and considered the parties' written and oral arguments. This Memorandum Opinion sets forth the Court's findings of fact and conclusions of law, as announced from the bench pursuant to Fed. R. Civ. P. 52(a). But, to begin with and before listing the detailed findings and conclusions, it is useful as context to describe briefly the parties, the pertinent patents, and the general law of inequitable conduct. Indeed, the settled legal principles of the doctrine of inequitable conduct are the lens through which the factual record must be examined and weighed.

I.

SEL is a Japanese research and development company that specializes in semiconductor technology. Over the past eighteen years, SEL has filed over 5,000 patent applications worldwide, and has been awarded approximately 1,500 U.S. and foreign patents for its inventions. Dr. Shunpei Yamazaki, the president and majority shareholder of SEL, is the inventor or co-inventor on most of SEL's patents, including the '636 patent.

SEL filed its application for the '636 patent, titled "Insulated Gate Field Effect Transistor," on June 7, 1995, and the patent issued on August 6, 1996. SEL is the owner of the '636 patent. The asserted claims of the '636 patent (claims 1-3 and 5) are generally directed to a thin film transistor ("TFT"), a type of insulated gate field effect transistor ("IGFET") used in active matrix display units. Active matrix displays, which are commonly used as screens in laptop computers, have thousands of pixels that create a picture or image. The pixels are turned on and off by TFT's. The invention claimed in the '636 patent is a TFT with a

semiconductor layer made of intrinsic amorphous silicon having a channel region sandwiched between a silicon nitride gate insulator and another insulator, wherein the concentration of impurities (e.g., carbon and oxygen) in the channel region are 5×10^{18} atoms/cm^3 or less. It is the combination of the specific structure together with the low impurity levels that constitutes the invention.

In October 1996, SEL brought this infringement action against the Samsung defendants, a group of companies engaged, inter alia, in the manufacture and sale of active matrix displays as well as laptop computers containing active matrix displays. Specifically, SEL's complaint alleges that the active matrix display units made and sold by Samsung infringe the '636 patent. Initially, SEL's complaint also included claims for infringement of U.S. Patent Nos. 5, 349, 204 ("the '204 patent") and 5,521,400 ("the '400 patent"). However, on March 4, 1998, an agreed order was entered withdrawing the '204 and the '400 patents from the action, thereby leaving the '636 patent as the sole remaining patent-in-suit.

Samsung alleges, as an affirmative defense, that the '636 patent is unenforceable owing to SEL's inequitable conduct before the PTO in connection with three separate patent applications: (i) the application for the '636 patent itself; (ii) the application for U.S. Patent No. 5,315,132 ("the '132 patent"); and (iii) the application for the '204 patent.

The relationship of these patents to each other is pertinent to the disposition of the issue at bar. In this regard, the genealogy of the '636 and '132 patents is well illustrated in SEL's Exhibit No. 432, which is attached to this Memorandum Opinion as an appendix. In essence, the '132 patent is antecedent to, in the direct priority chain of the '636 patent. Specifically, the '636 patent resulted from

continuation and divisional applications from the application that issued as the '132 patent. The priority date of the '636 patent thus relies on the chain of applications that includes the '132 patent. Further, because the subject matter of the '636 patent is so closely related to the '132 patent, a terminal disclaimer was filed with respect to the '636 patent, giving it the expiration date of the '132 patent.[1] Both the '132 and the '636 patents rely upon the May 18, 1984 filing date for SEL's Japanese laid-open Application No. 59-100250 ("the '250 application"), which has a "one-to-one" relationship with both the '132 and the '636 patents. Both patents have the same inventor (Dr. Yamazaki), owner (SEL), disclosure, specification, and title. The '132 patent issued on May 24, 1994, resulting from an application that was filed on December 8, 1992.

The '204 patent is not a part of the '250 application-'132-'636 chain. Yet, like the '636 patent, the '204 patent claims an invention related to low levels of impurities, contains similar prior art references, and was prosecuted at roughly the same time as the '636 patent. Specifically, the '204 patent issued on September 20, 1994, based on an application filed on December 7, 1993.

In support of its inequitable conduct defense, Samsung alleges that SEL made deliberate, material misrepresentations to, and withheld material prior art references from, the PTO during its prosecutions of these

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[1] In this regard, the '132 patent also claims a TFT with the same low levels of impurities as are claimed in the '636 patent. As Dr. Yamazaki testified during the hearing, the "essential nature of the ['636 & '132] invention[s]" is the same. The difference between the two patents is that the asserted claims of the '636 patent are narrower than the claims of the '132 patent. For example, the '132 patent is not limited to an IGFET with a silicon nitride gate, or an intrinsic silicon layer, while the claims of the '636 patent are so limited.

three applications. The specifics of these allegations for each patent are set forth as a preface to the findings for that patent. In essence, Samsung argues that SEL's misconduct during each of these three patent prosecutions is sufficient to render all of the claims of the '636 patent unenforceable for the life of the patent.

II.

It is fundamental that all applicants for patents have a duty to prosecute patent applications in the PTO with candor, good faith, and honesty. *See Precision Instrument Mfg. Co. v. Automotive Maintenance Mach. Co.*, 324 U.S. 806, 818, 65 S.Ct. 993, 89 L.Ed. 1381 (1945). The vital importance of this duty cannot be overstated. Without it, the edifice of patent law cannot stand. Indeed, the cornerstone presumption of an issued patent's validity, and the placement of a heavy burden on the infringer to show invalidity, both rest on the proper fulfillment of this duty.

A breach of this duty of candor, good faith, and honesty constitutes inequitable conduct,[2] and renders all claims of the patent involved unenforceable. *See Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995). And inequitable conduct includes "affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Id.* The party raising the affirmative defense of inequitable conduct must offer clear and convincing evidence that the conduct is

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2 Inequitable conduct is simply "the unclean hands doctrine applied to particular conduct before the PTO." *Consolidated Aluminum Corp. v. Foseco Int'l Ltd.*, 910 F.2d 804, 812 (Fed. Cir. 1990)

both material and intended. *See id.*[3] More specifically, the doctrine of inequitable conduct requires the trial court to undertake a two-step analysis. *See Halliburton Co. v. Schlumberger Tech. Corp.*, 925 F.2d 1435, 1439 (Fed. Cir. 1991). First, the court must discern whether the withheld references or misrepresentations satisfy a threshold level of materiality. *See id.* The court must also determine whether the applicant's conduct in this regard satisfies a threshold showing of intent to mislead. *See id.*[4] Next, assuming satisfaction of the thresholds, "the trial court must balance materiality and intent.... The more material the omission [or misrepresentation], the less culpable the intent required, and vice versa." *Id.* Finally, an equitable judgment must be made that, "in light of all the particular circumstances, the conduct of the patentee is so culpable that its patent should not be enforced." *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 958 F.2d 1066, 1070 (Fed. Cir. 1992).

Materiality is defined at 37 C.F.R. § 1.56 (Rule 56), and, as the Federal Circuit teaches,[5] this is the starting point

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[3] Clear and convincing evidence is evidence "which proves in the mind of the trier of fact 'an abiding conviction that the truth of [the] factual contentions [is] "highly probable."' *Intel Corp. v. United States Int'l Trade Comm'n*, 946 F.2d 821, 830 (Fed. Cir. 1991) (quoting *Colorado v. New Mexico*, 467 U.S. 310, 316, 104 S.Ct. 2433, 81 L.Ed.2d 247 (1984)).

[4] It is worth noting that a finding of gross negligence itself is insufficient to satisfy the intent threshold. *See Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988). At the same time however, the precise content of the intent "threshold" remains essentially undefined. In any event, the defense of inequitable conduct will not succeed in rendering a patent unenforceable unless it is shown by clear and convincing evidence that the offending conduct was material and done with an intent to deceive.

[5] *See Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1257 (Fed. Cir. 1997).

in the materiality analysis. Thus, since 1992,[6] Rule 56 has provided, in pertinent part, as follows:

> information is material to patentability when it is not cumulative to information already of

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[6] Prior to the 1992 amendment, Rule 56 defined information as material when "there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent." 37 C.F.R. § 1.56 (1989). The Federal Circuit has not discussed the meaning of the new Rule 56, which appears narrower, *i.e.*, less information is defined as material, than the former version of Rule 56. Nevertheless, the new (1992) version of Rule 56 does not purport to alter the previously-settled principle that a "but for" test is inappropriate in determinations of materiality. *See Merck & Co., Inc. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1421 (Fed. Cir. 1989) (rejecting a "but for" standard of materiality under pre-1992 Rule 56). In other words, materiality does not require a finding that "but for" the inequitable conduct, the patent would not have issued.

Also worth noting is that the new version of Rule 56 does not refer to a hypothetical reasonable examiner or to any standard for an examiner's competence. Application of the new rule does not require the use of any such standard. In any event, it is clear that patent examiners are not presumed to be omniscient, *i.e.*, to know all the prior art, together with its relevance and significance. Were this not so, there would be no need for a duty of disclosure of prior art. But this duty is vital given that patent prosecution proceedings are typically ex parte, and examiners, while technically skilled, are not omniscient. Consistent with this, examiners are properly characterized as "quasi-judicial officials trained in the law and presumed to 'have some expertise in interpreting the [prior art] references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.'" *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 986 (Fed. Cir. 1995) (quoting *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984)). Thus, examiners are skilled in the art insofar as they are technically competent to understand information and references in some technical or scientific field, but they are not of ordinary skill in the art to the extent that this might imply that they are aware of all the pertinent prior art.

> record or being made of record in the application, and
>
> (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim;[7] or
>
> (2) It refutes, or is inconsistent with, a position the applicant takes in:
>
> (i) Opposing an argument of unpatentability relied on by the Office, or
>
> (ii) Asserting an argument of patentability.

Thus, under the new Rule 56, materiality is phrased in terms of whether a misrepresentation, if corrected, or an omitted reference, if disclosed, would, itself or together with other information, give rise to a *prima facie* (*i.e.*, rebuttable) case of unpatentability. If so, the omitted reference or misrepresentation is material. But this is not the only test of materiality. The omitted reference or misrepresentation may also be material if it refutes or is inconsistent with the applicant's patentability arguments.

Whether a withheld reference or omitted information is cumulative plays a prominent role in this case. Thus, it is important to note that while cumulative information is not material under Rule 56, a withheld reference may be highly

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[7] Rule 56 further provides that "[a] prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden- of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability." 37 C.F.R. § 1.56(b).

material when it discloses a more complete combination of relevant features, even if those features are before the patent examiner in other references. *See, e.g., Molins*, 48 F.3d at 1180; *LaBounty*, 958 F.2d at 1075-76; *In re Jerabek*, 789 F.2d 886, 890 (Fed. Cir. 1986). Thus, where, as here, the invention is a combination of elements, an undisclosed prior art reference that contains more of the combined elements than the disclosed references is not cumulative simply because various elements of the invention appear in other disclosed references.

Inequitable conduct requires more than mere materiality of the withheld or misrepresented reference or information; it also requires an intent to act inequitably. And no presumption of intent to deceive arises merely from the materiality of an undisclosed reference. *See Halliburton*, 925 F.2d 1435, 1442. Even gross negligence "does not of itself justify an inference of intent to deceive." *Id.* Rather, such conduct "can support an inference of intent only when, 'viewed in light of all the evidence, including evidence indicative of good faith,' the conduct is culpable enough 'to require a finding of intent to deceive.' " *Id.* (quoting *Kingsdown*, 863 F.2d at 876). Yet, it is also true that a patentee facing a "high level of materiality and clear proof that it knew or should have known of that materiality, can expect to find it difficult to establish 'subjective good faith' sufficient to prevent the drawing of an inference of intent to mislead." *Critikon*, 120 F.3d at 1257. In such circumstances, a "mere denial of intent to mislead (which would defeat every effort to establish inequitable conduct) will not suffice." *Id.*

The test, then, requires a consideration of, and a judgment on, the totality of the circumstances. In the words of the Federal Circuit, courts must determine whether the conduct "in its totality manifests a sufficiently culpable state

of mind to warrant a determination that it was inequitable." *Molins*, 48 F.3d at 1181. This sensible formulation recognizes that direct proof of intent is rarely available and that it is impossible to scrutinize directly the workings of the human mind.

It is against these general legal principles that Samsung's claims of inequitable conduct must be assessed. Thus, analysis of Samsung's claims will proceed by an initial assessment as to the materiality of any withheld or mischaracterized information during SEL's prosecution of the '636, '132, and '204 patent applications. An assessment of SEL's intent will follow.

III.

A. The '636 Patent Application

Samsung alleges two specific instances of inequitable conduct by SEL during its prosecution of the '636 patent. First, SEL submitted to the PTO as prior art the Japanese laid-open Application No. 56-135968, assigned to Cannon K.K. ("the Canon '968 application"), which is also directed to TFT's. Specifically, SEL submitted the full 29-page Japanese language version and a one-page partial English translation of the Canon '968 application. Samsung contends that by highlighting, through translation, only one of the many elements in the Canon reference that was relevant to the '636 application, and by leaving the others untranslated, SEL deliberately mischaracterized the importance of Canon and attempted to conceal material information from the examiner. Second, SEL also revealed as prior art a 1983 article by Dr. C.C. Tsai titled "Amorphous Si Prepared in a UHV Plasma Deposition System," which teaches the reduction of impurities in amorphous silicon to improve performance in electronic devices. SEL distinguished the

Tsai article before the PTO by claiming that it applied primarily to solar cells and not TFT's, and by stating that the current in the devices discussed in the article runs in a perpendicular direction, while the current in the type of TFT's referred to in the '636 patent runs in a parallel direction. Samsung alleges that SEL's statements in this regard were disingenuous attempts to distinguish the Tsai article from the '636 patent application, and that they were contrary to its own knowledge and inconsistent with its own position in other patent applications.

1. The Canon '968 Application

On November 15, 1995, in connection with its '636 patent application, SEL disclosed approximately 90 references of prior art to the PTO, including the Canon '968 application. SEL submitted the full 29-page Japanese language version of the Canon '968 application to the PTO, but not a full English translation. Instead, it submitted a one-page document titled "Partial Translation of JP-Laid Open 56-135968," which selectively translated for the PTO sections of the application appearing both before and after the untranslated portions of the Canon '968 application. Dr. Yamazaki testified that the partial translation had already been prepared in connection with another patent application, and that he made the decision that only certain portions of the Canon '968 application should be translated and submitted to the PTO together with the full Japanese language version in connection with the '636 application.

The partially translated portion of the Canon reference discloses a silicon nitride gate insulator, one of the elements of the asserted claims of the '636 patent. Dr. Yamazaki testified that at the time he submitted the partially translated Canon '968 reference, the silicon nitride gate insulator was the only disclosure in the Canon '968

application that he believed to be relevant to the '636 patent. Indeed, when he disclosed the Canon '968 application to the PTO, he identified its relevance only as "disclos[ing] the use of silicon nitride for a gate insulating layer of a thin film transistor."

Yet, this was not accurate; the untranslated portions of the Canon '968 application were also relevant to a consideration of the patentability of the invention claimed in the '636 patent. In general, these portions were (a) the frequent admonitions to prevent or limit atmospheric impurities in semiconductor materials,[8] which provide an express suggestion to employ teachings such as those found in the Tsai article or in the '423 or the '488 applications[9] to reduce carbon, oxygen and nitrogen impurities below the levels claimed in the '636 patent, and (b) a description of the same structure for a thin film transistor as is described in the '636 patent. More specifically, the untranslated portion of the Canon '968 teaches avoiding exposure of the channel region to impurities resulting from air or oxygen. Further, the untranslated portion teaches the cleaning of the substrate by etching part of it away, prior to depositing the amorphous silicon. Further, it teaches that the substrate can introduce impurities, and that washing alone is insufficient to avoid impurities. Although other prior art disclosed by SEL during

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8 In this regard, and indeed generally, the Court credits the testimony of Samsung's witnesses Dr. Fonash, Dr. Tsai, and Dr. Meyerson over SEL's witnesses Dr. Lucovsky and Dr. Yamazaki whenever there is a conflict.

9 That is, SEL's Japanese laid-open Application Nos. 59-35423 ("the 423 application") and 59-35488 ("the '488 application"), which were laid-open (published in Japan) on February 27, 1984.

the prosecution of the '636 patent, such as the Tsai article,[10] teach avoidance of impurities, none disclose or teach the processing sequences useful in avoiding impurities, such as etching the substrate. The translated portion of the Canon '968 application submitted by SEL to the PTO omitted this teaching.

It is also significant that the translated portion of the Canon '968 application describes a TFT structure that is somewhat different from that described in the '636 patent, whereas the structure described in the untranslated portion of the Canon '968 application describes the same structure found in the '636 patent. Thus, the structure described in the untranslated portion of the Canon '968 application has the same intrinsic semiconductor layer made from amorphous silicon; the same channel region sandwiched between the insulators; and (in both the translated and the untranslated portions), the same silicon nitride gate insulator as claimed in the '636 patent. To be sure, other references cited to the PTO disclose the various elements described in the '636 patent claims. Yet, no other reference before the examiner contained as complete a combination of the '636 elements as is disclosed in the untranslated Canon '968 application.

Thus, contrary to SEL's contention, Dr. Fonash's testimony convincingly establishes that the untranslated portions of Canon are not merely cumulative, as they contain a more complete combination of the elements -- the intrinsic amorphous silicon, the silicon nitride gate insulator, and the admonition to avoid impurities -- that are claimed in the '636

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[10] Findings relating both to the nature of the Tsai article and to Dr. Yamazaki's and SEL's knowledge of it are set forth in the following sections.

patent itself.[11] Dr. Fonash further convincingly testified that the untranslated portions of the Canon '968 application and the Tsai article, taken together, would disclose a device having every element of the asserted claims of the '636 patent. As Dr. Fonash put it, a fully translated Canon '968 application provides a "good blueprint" for making the exact device described in the '636 patent, and additionally provides the admonition to avoid impurities. The Tsai article, discussed infra in more detail, discussed amorphous silicon films with specific low levels of impurities within the claim limitations of the '636 patent. Thus, Dr. Fonash concluded that the fully translated Canon '968 application, when taken together with the Tsai article, renders obvious the asserted claims of the '636 patent. Moreover, he concluded that failing to disclose the untranslated portions of the Canon application would significantly hinder a patent examiner's ability to determine whether the '636 patent application was an unobvious advancement over the prior art. In a grudging admission of this, Dr. Yamazaki testified during the inequitable conduct hearing that submitting a complete translation of the Canon '968 application would have been a "kinder thing" for him to do, and that a full translation "would be more convenient" for the PTO.

Accordingly, the evidence is clear and convincing that untranslated portions of the Canon '968 application contained information highly material to the prosecution of the '636 patent application as they, together with other information, establish a *prima facie* case of unpatentability. *See* 37 C.F.R. § 1.56. The evidence is also clear and convincing that the fully translated Canon '968 application was knowingly withheld from the PTO.

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[11] Worth noting in this regard is that Dr. Yamazaki acknowledged his duty to provide the PTO with the prior art references "most similar to" his claimed invention.

2. The Tsai Article

In the course of prosecuting the application that led to the issuance of the '636 patent, SEL disclosed to the PTO as prior art a 1983 article by Dr. Tsai titled "Amorphous Si Prepared in a UHV Plasma Deposition System." This article teaches the reduction of impurities in amorphous silicon to improve performance in electronic devices.

During the prosecution of the '636 patent application, SEL sought to distinguish the Tsai article before the PTO by suggesting that it applied primarily to solar cells rather than to TFT's. Further, SEL argued before the PTO that the Tsai article was distinguishable in that the electrical current in the devices discussed in her article runs in a perpendicular direction, while the electrical current in the TFT's referred to in the '636 patent runs in a parallel direction. At the inequitable conduct hearing, SEL, through the testimony of Dr. Yamazaki, expressed the view that impurities such as carbon and oxygen affect solar cells differently from TFT's and create different problems in the two devices. Thus, SEL asserted both before the PTO and in the course of this hearing, that teachings concerning the effects of impurities in solar cells are not relevant to TFT's.

The record as a whole discloses that SEL's efforts to distinguish the Tsai article before the PTO were neither valid nor accurate. Thus, Dr. Tsai testified convincingly that her article, which refers to "large area devices," would have been understood by those in the field, both at the time of its publication and thereafter, to include devices made with TFT's as well as solar cells. Dr. Fonash agreed, testifying that in 1983, at the time the Tsai article was published, he understood the term "large area device" to include devices made with TFT's. Dr. Yamazaki also testified that the current active matrix display units that utilize TFT's are large area

devices. In sum, the expert testimony convincingly establishes that contrary to SEL's representation to the PTO, the Tsai article would have been understood by persons of ordinary skill in the art in 1983 and thereafter to apply not just to solar cells, but to TFT's as well.

Record evidence reflects that Dr. Yamazaki, a distinguished and accomplished solid state physicist, surely knew this. Thus, his '423 and '488 Japanese laid-open applications, which deal mainly with solar cells, expressly state that the benefits of the lower levels of impurities described in those applications also apply to "insulated gate field effect semiconductor device [s]" such as TFT's. So, as the '423 and the '488 laid-open applications reflect, Dr. Yamazaki recognized by 1984 a clear connection between solar cells and TFT's in that the importance of reducing impurity levels is applicable to both. Moreover, SEL was prosecuting the '400 patent application, one of the original patents-in-suit, at approximately the same time it was prosecuting the '636 patent application. The '400 patent, which is also directed mainly to solar cells, contains a figure (figure 9) that illustrates that the invention applies to insulated gate field effect transistors, as well.

In summary, for the limited purpose of trying to persuade the examiner that the Tsai article was not material, SEL adopted a position contrary to its own knowledge, and inconsistent with its own previously stated position on an important issue before the PTO. Specifically, in its '423, '488, and '400 patent applications, SEL asserts that its claimed inventions, which are primarily directed to reducing impurities in solar cells, are equally applicable to TFT's. Yet, in its prosecution of the '636 patent application, SEL distinguished the Tsai article on the basis that its teachings apply primarily to solar cells, not TFT's. Thus, contrary to the clear statements found in the '423, '488, and '400

applications, SEL argued before the PTO, in effect, that references concerned with the effects of impurities in solar cells are not germane to a TFT's patentability. SEL never revealed this inconsistency to the PTO as required under 37 C.F.R. § 1.56.

Next, convincing expert testimony also contradicts SEL's representation to the PTO that the Tsai article is distinguishable based on the direction of the current. Thus, Dr. Tsai and Dr. Fonash persuasively testified that it is irrelevant to the effect of impurities in a device as to whether current runs perpendicular or parallel. Accordingly, it is clear from this record that the difference in the direction of current flow was not a valid basis for distinguishing the Tsai article from the '636 patent application. Moreover, Dr. Yamazaki, as an accomplished solid state physicist, was certainly aware that this was a distinction without significance as well.

Knowledge that the teachings of the Tsai article were equally applicable to TFT's was material to the prosecution of the '636 patent application. The expert testimony of Dr. Fonash clearly established that the Tsai article teaches the making of amorphous silicon with impurity concentrations in the amorphous silicon layer within the levels recited in all claims of the '636 patent. The deposition testimony of Dr. Lucovsky confirms this conclusion. Further, as the testimony of Dr. Fonash convincingly establishes, the Tsai article, taken together with the untranslated portions of the Canon '968 application, disclose a device having every element of the asserted claims of the '636 patent.[12] Thus, the clear and

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[12] The Tsai article's materiality to the '636 patent is confirmed by Dr. Yamazaki's own January 1995 letter to his licensing agent, in which he acknowledges the Tsai article as being highly relevant to the '132 patent, which, like the '636 patent, is directed to TFT's, not solar cells.

convincing evidence demonstrates that the Tsai article, taken together with other information, would give rise to a *prima facie* case of unpatentability, and was therefore highly material to the prosecution of the '636 patent application. Equally clear and convincing is that SEL knowingly mischaracterized the article as not relevant to TFT's, the subject matter of the '636 invention.

B. The '132 Application

Samsung asserts that during the prosecution of the '132 patent application, SEL made a material misrepresentation regarding information disclosed in a prior art reference, and additionally failed to disclose at least three material prior art references. Specifically, SEL represented to the PTO that the levels of impurities recited in a prior art reference, U.S. patent No. 4,766,477 issued to Nakagawa ("the Nakagawa '477 patent"), was 4×10^{19} atoms/cm^3 when the correct value was approximately eight times lower. Samsung alleges that SEL deliberately misrepresented the figure in order to distinguish the '636 patent from the Nakagawa '477 patent. Further, Samsung contends that SEL deliberately withheld at least three material prior art references, namely (1) the 1983 Tsai article "Amorphous Si Prepared in a UHV Plasma Deposition System," (2) the '423 laid-open application, and (3) the '488 laid-open application.

A threshold issue is the relevance of any inequitable conduct by SEL in connection with its prosecution of the '132 patent application. Samsung contends that where inequitable conduct is found in an application that results in an issued patent, all subsequent patents relying on the same chain of priority, whether from divisional or continuation applications, must also be held unenforceable, whether or not the applicant's inequitable conduct continued during the subsequent application. Thus, Samsung invites the Court to

hold that inequitable conduct during SEL's prosecution of the '132 patent application necessarily renders unenforceable all the claims of the '636 patent.

This argument requires an extension of existing law. To date, no Federal Circuit case has squarely decided this issue, although there is supporting Federal Circuit dictum,[13] and supporting district court case law,[14] upon which

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13 *See Fox Indus., Inc. v. Structural Preservation Sys.*, 922 F.2d 801, 804 (Fed. Cir. 1990) (stating that inequitable conduct "early in the prosecution may render unenforceable all claims which eventually issue from the same or a related application"); *see also Consolidated Aluminum*, 910 F.2d at 810-11 (inequitable conduct in procuring one patent- in-suit may render related patents-in-suit unenforceable where the inequitable conduct has an "immediate and necessary relation" to the equity patentee seeks, namely enforcement of the related patents).

14 *See Baxter Int'l. Inc. v. McGaw, Inc.*, 958 F. Supp. 1313, 1315-17 (N.D. Ill.1997) (Inequitable conduct in original application which gave rise to multiple divisional applications resulted in all three resulting patents being held unenforceable, even when inequitable conduct did not affect the claims of one of the resulting patents); *Jack Frost Lab., Inc. v. Physicians & Nurses Mfg. Corp.*, 901 F. Supp. 718, 729 (S.D.N.Y.1995) (Inequitable conduct in original application that resulted in issued patent also made later patent resulting from continuation application unenforceable); *Golden Valley Microwave Foods, Inc. v. Weaver Popcorn Co., Inc.*, 837 F. Supp. 1444, 1478 (N.D. Ind.1992) (Inequitable conduct in prosecution of original application that resulted in issued patent could not be purged in continuation application, and therefore, subsequent patent in the same chain held unenforceable); *Molins PLC v. Textron, Inc.*, 821 F. Supp. 1551, 1581 (D. Del.1992) *aff'd*, 48 F.3d 1172, 1187 (Fed. Cir. 1995) (Inequitable conduct in original application that resulted in an issued patent likewise rendered later patent issued from a divisional application unenforceable); *East Chicago Mach. Tool Corp. v. Stone Container Corp.*, 181 U.S.P.Q. 744, 748 (N.D. Ill.1974), *vacated in part*, 185 U.S.P.Q. 210 (N.D. Ill.1974) (Where inequitable conduct was committed in the original application, all patents stemming from it, whether resulting from continuation or divisional applications, are unenforceable for inequitable conduct regardless of whether the

Samsung relies. In the final analysis, however, this issue need not be reached, as SEL's inequitable conduct during its prosecution of the '636 patent application is sufficient to render the claims of the '636 patent unenforceable. Nevertheless, given the close relationship between the '636 and the '132 patents,[15] any inequitable conduct by SEL during its prosecution of the '132 is still relevant to show plan, motive, intent and pattern and practice under Rules 402, 403, & 404(b), Fed. R. Evid.[16]

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inequitable conduct relates to any of the issued claims in the subsequent patents).

Closely read, none of these cases is precisely on point factually; none involves, as here, misrepresentations or nondisclosure made with respect to an earlier patent in a chain, but not repeated in connection with the later, challenged patent in the chain. Instead, the cited cases generally involve misconduct with respect to an earlier patent that is repeated and hence permeates, in a sense, the prosecution of the later, related patent. *See, e.g., Jack Frost*, 901 F. Supp. at 718; *Golden Valley*, 837 F. Supp. at 1444; *but cf. Baxter*, 958 F. Supp. at 1315-1318 (inequitable conduct committed during original application not repeated during prosecution of subsequent, divisional application).

[15] Again, the '636 patent resulted from continuation and divisional applications from the application that issued as the '132 patent. *See* appendix. Because the subject matter of the two patents is so closely related, a terminal disclaimer was filed, giving the '636 patent the expiration date of the '132 patent.

[16] It is worth emphasizing the distinction drawn here between relying on inequitable conduct relating to the '132 patent as an independent basis for holding the '636 patent unenforceable, which is not the course followed here, and relying on inequitable conduct relating to the '132 patent as evidence that may aid in the determination of SEL's intent with respect to conduct relating to the prosecution of the '636 patent application. The latter course is followed here. In other words, this Memorandum Opinion proceeds on the basis that conduct related to the prosecution of the '636 is the sole basis for a finding of inequitable conduct, but that conduct relating to the '132 is relevant and probative as

1. The Nakagawa '477 Patent

During SEL's prosecution of the '132 patent application, the PTO originally rejected some of its claims relating to low levels of impurities based on the same or similar impurity levels described in the Nakagawa '477 application. In response, SEL, in an amendment filed on May 25, 1993, argued that the rejected '132 claims should be allowed over the Nakagawa application because the '132 claimed a lower level of impurities. To prove this vital point, the amendment submitted to the PTO included a calculation premised on an incorrect, overstated figure for the atomic density of amorphous silicon. Specifically, the figure used was 4×10^{23} atoms/cm^3, which was approximately eight times higher than the correct value of 5×10^{22} atoms/cm^3. The result of using this artificially inflated figure was that SEL's calculation of the level of impurities disclosed in the

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it provides important context, given the close relation of the patents and as it sheds light on the intent underlying the conduct relating to the prosecution of the '636 patent.

A further digression on this subject is warranted. Although there do not appear to be any Federal Circuit decisions involving or applying Rule 404(b), Fed. R. Evid., there can be little doubt that it is as applicable in patent litigation as in other litigation contexts. *See Arcade, Inc. v. Minnesota Mining and Mfg. Co.*, 24 U.S.P.Q.2d 1578, 1589 (E.D. Tenn.1991) (finding prior inequitable conduct to be 404(b) evidence from which to infer intent to deceive during later patent prosecutions). Yet, because the inequitable conduct defense is so often frivolously pled, *see Burlington Indus., Inc. v. Dayco Corp.*, 849 F.2d 1418, 1422 (Fed. Cir. 1988) (characterizing the practice of charging inequitable conduct in almost every patent case as "an absolute plague"), district courts must take care to ensure that assertions of the defense of inequitable conduct plus reliance on Rule 404(b) do not become a license for a fishing expedition into a patentee's files concerning related patents and applications. Discovery of such files should not be allowed absent a significant threshold showing of inequitable conduct and relevance with respect to the patent-in-suit.

Nakagawa '477 patent, 4 x 10^{19} atoms/cm^3, was also approximately eight times higher than the figure actually disclosed in the Nakagawa '477 patent. Thus, the impurities range claimed in the '132 patent, namely 5 x 10^{18} atoms/cm^3 or less, appeared lower than that disclosed and claimed in the Nakagawa '477 patent. On this basis, the examiner allowed the previously rejected claims in the '132 patent over the Nakagawa reference.

Dr. Yamazaki testified that the incorrect silicon atomic density figure provided to the PTO was the result of a careless error by Mr. Kunitaka Yamamoto, SEL's in-house patent representative who was assisting Dr. Yamazaki with the '132 prosecution. Mr. Yamamoto confirmed in his testimony that he had made the error. Yet, no satisfactory explanation was provided by Mr. Yamamoto as to how he arrived at this incorrect figure, or why he was able to provide the correct atomic density figure for silicon in later applications.[17] Mr. Yamamoto merely testified that the mistake occurred because his "memory of the number of [silicon] atoms was incorrect."

Dr. Yamazaki gave conflicting testimony on precisely how he learned of the error. At one point during the hearing, Dr. Yamazaki testified that I.B.M. had pointed out the mistake sometime following a March 1995 licensing meeting. Later, Dr. Yamazaki testified that I.B.M. had not revealed the mistake, but rather that he had discovered the error while preparing for this lawsuit. In any event, it is clear that neither Dr. Yamazaki nor Mr. Yamamoto informed the PTO that an error had been made regarding the silicon

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[17] Specifically, SEL used the correct atomic density figure for amorphous silicon in an April 1995 filing to the PTO in connection with the '636 proceeding, and again later in the same proceeding in a November 15, 1995 filing.

density figure provided in connection with the prosecution of the '132 patent. Specifically, Dr. Yamazaki testified that he did not disclose the error when it came to his attention because the '132 patent had already issued. Rather, he thought that it was sufficient that the correct figure had been submitted in connection with SEL's pending prosecution of the '636 patent application.[18] Mr. Yamamoto also testified

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[18] On this point, it is worth noting that Mr. Yamamoto testified that Dr. Yamazaki suggested calling the error to the PTO's attention, but that he, Mr. Yamamoto, essentially vetoed this suggestion. This testimony is flatly implausible; the record leaves no doubt that Dr. Yamazaki pays close attention to matters of this sort, and that in all matters relating to his patent applications, Dr. Yamazaki ultimately calls the shots. This fact is made pellucidly clear by Samsung's Exhibit No. 1417, a January 1996 letter from Dr. Yamazaki to his licensing agent explaining Dr. Yamazaki's decision to revoke a power of attorney in connection with the prosecution of Application No. 425,455, an application in the '250 application-'132-' 636 chain. *See* appendix. There, Dr. Yamazaki writes:

> The Revocation was necessary because our view regarding certain prior art references was entirely different from Mr. Ferguson's [SEL's patent attorney] view. That is, after we received a Notice of Allowance, Mr. Ferguson suggested that it was necessary to submit the references to the Patent Office as a duty of disclosure. To do this, a Rule 62 continuation application was necessary. However, contrary to Mr. Ferguson, it was our belief that these references were not more material than the references cited during the prosecution. We and Mr. Ferguson extensively discussed this matter but could not finally reach a conclusion. Mr. Ferguson suggested that even though we (SEL) believed that these references were immaterial, he himself had an obligation to disclose the references as a patent attorney since he believed the references were more relevant than the prior art considered by examiners. In view of the above situation, we decided to file the Revocation of Power of Attorney in order to allow the application to issue as a patent.

There is no doubt, then, that it is Dr. Yamazaki who ultimately determines what information is disclosed to the PTO in connection with his patent applications.

that he did not think that he had any obligation to inform the PTO that an error had been made during the prosecution of the then issued '132 patent.[19]

The expert testimony of Dr. Fonash established by clear and convincing evidence that disclosure of the correct figure for the density of silicon was highly material to the prosecution of the '132 patent application. Specifically, the PTO originally rejected claims in the '132 patent application based in part on the impurity concentrations disclosed in the Nakagawa '477 application. Yet, as Dr. Fonash testified, the use of an overstated silicon atomic density figure enabled SEL to argue that the '132 patent application claimed a lower level of impurities than the Nakagawa '477 application. Disclosure of the correct silicon atomic density figure, then, would have deprived SEL of this important argument in support of patentability.

2. The Tsai Article[20]

On August 26, 1983, Dr. Yamazaki attended a lecture given by Dr. C.C. Tsai at a technical conference in Tokyo. The lecture dealt with depositing amorphous silicon films with specific low levels of impurities. Significantly, these

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[19] In this regard, Mr. Yamamoto testified that he had read pertinent portions of the Code of Federal regulations and the PTO's Manual of Patent Examining Procedure and understood his duty of candor to the PTO. More specifically, he confirmed his understanding of the duty of candor as encompassing a duty to disclose to the PTO material information resulting from Japanese patent proceedings, including any material prior art or information cited or brought to his attention in any related foreign application.

[20] This is the same article that SEL mischaracterized as limited to solar cells in connection with its prosecution of the '636 patent application. *See supra* Part III(A)(2).

low impurity levels also fall within the claim limitations of the '132 and the '636 patents. Dr. Yamazaki testified that his work on lowering impurity levels preceded Dr. Tsai's speech, and that he had given a similar speech concerning his own work in reducing levels of impurities at a Reston, Virginia conference in May 1983. He initially testified that he does not remember being particularly impressed with the Tsai speech, given that it followed his own on reducing impurities.[21] He continued that he did not really recall anything in particular about Dr. Tsai's speech, including whether she discussed specific impurity levels. This testimony was not in accord with his testimony at a February 27, 1998 deposition, at which time he characterized his initial impression of Dr. Tsai's speech as being "spectacular." Other experts, including Dr. Meyerson, confirmed that the Tsai article was a pathbreaking work of great importance.

At the time of the conference, Dr. Yamazaki received an abstract of Dr. Tsai's lecture. Dr. Tsai also testified that she spoke with Dr. Yamazaki following her lecture, and that he asked her for a copy of "Amorphous Si Prepared in a UHV Plasma Deposition System," the article on which her lecture had been based. The Tsai article was in fact published later that year in the Journal of Non-Crystalline Solids, Volume 59 & 60 (1983). Dr. Tsai stated that she directed her secretary to send Dr. Yamazaki a reprint of the article and that it was accordingly sent to him. Further, Dr. Tsai stated that all conference attendees, including Dr. Yamazaki, were sent a copy of all conference papers in a bound volume.

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[21] Yet, in a later appearance on the witness stand, Dr. Yamazaki admitted that Dr. Tsai's presentation at the 1983 Tokyo conference "left an impression" on him because it was a large conference and Dr. Tsai was one of the few women speakers there.

During his first appearance at the hearing, Dr. Yamazaki testified that he did not recall having a conversation with Dr. Tsai, or requesting a copy of her article at the August 1983 conference. Rather, he only remembered speaking to her for the first time, apparently on an unrelated matter, one year later at a conference in Snowbird, Utah. Further, Dr. Yamazaki testified that he did not remember receiving anything other than the abstract of her speech.[22]

In 1984, Dr. Yamazaki and others submitted an article, also to the Journal of Non-Crystalline Solids, which was published later that year. The 1984 Yamazaki article cites to a 1984 article written by Dr. Tsai, which in turn references her 1983 article, "Amorphous Si Prepared in a UHV Plasma Deposition System." Dr. Yamazaki testified that the portion of his 1984 article that refers to the Tsai publication was written by a co-author, and that he in fact never read the Tsai reference.

Given the sequence of events, and the record as a whole, Dr. Yamazaki's testimony on the Tsai article is neither plausible nor credible. It is simply implausible that Dr. Yamazaki did not review and comprehend the significance of the Tsai article in 1983-4 and thereafter. He testified that he delivered a similar speech on lowering impurities just months before he heard Dr. Tsai's own presentation, a presentation Dr. Yamazaki once described as "spectacular," an assessment consistent with Dr. Meyerson's and Dr. Fonash's, but inconsistent with his (Dr. Yamazaki's) own hearing testimony. Further, Dr. Tsai distinctly remembers speaking with Dr. Yamazaki following her presentation, and granting his request for a reprint of her article. And, Dr. Yamazaki's own 1984 article, although a

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22 The abstract alone does not discuss specific impurity levels.

collaborative work, specifically cites to a Tsai article which itself references her 1983 article. Dr. Yamazaki, as an accomplished physicist with a focused interest in this area and as an experienced inventor with a demonstrated interest in securing patents, had every reason to review and remember Dr. Tsai's article.

Yet, the 1983 Tsai article was not disclosed as prior art during the prosecution of the '132 patent. Rather, SEL first disclosed the Tsai article to the PTO in November 1994 in connection with Application No. 214,494 ("the '494 application"), which was soon thereafter abandoned.[23] At that time, SEL represented to the PTO that the Tsai article had only recently come to its attention. Similarly, Dr. Yamazaki testified at the inequitable conduct hearing that the Tsai article was first called to his attention as relevant prior art to the '132 patent during licensing negotiations with Toshiba in October, 1994, after the '132 patent had issued. Yet, as already noted, this is simply not credible; the record as a whole reflects that Dr. Yamazaki was well aware of the Tsai article throughout the relevant period.

As was true in the prosecution of the '636 patent, the Tsai article was highly material to the '132 patent application. In a January 1995 letter to his licensing agent for the '132 patent, Dr. Yamazaki himself stated that "we do not think there is a more relevant reference than C.C. Tsai's abstract of August 22, 1983 and his (sic) papers of December 1983, that you know." Despite the admission, Dr. Yamazaki testified at the hearing that the abstract is not in fact relevant. Yet, any attempt by Dr. Yamazaki to rely on a distinction between the abstract and the entire article is unpersuasive. The record as a whole leaves the Court with a clear

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23 *See* appendix. The Tsai article was also disclosed to the PTO on June 7, 1995 during the prosecution of the '636 patent application.

conviction that Dr. Yamazaki was well aware of the Tsai article throughout the relevant period. And, expert testimony established by clear and convincing evidence that the 1983 Tsai article was highly material. Specifically, Tsai's article teaches the making of amorphous silicon with impurity concentrations in the amorphous silicon layer within the levels recited in all claims of the '132 patent. Dr. Fonash also testified that the Tsai article shows "you in great depth, in greater detail, how to attain those impurity levels, and has data showing how they actually did attain those impurity levels." He further testified that the Tsai article is directed to "large area device applications" which include TFT's. Claim 7 of the '132 patent is directed to a TFT with low impurities. Accordingly, the evidence clearly and convincingly shows that disclosure of the Tsai article during the prosecution of the '132 patent would have given rise to a *prima facie* case of unpatentability.

3. The '423 and '488 Laid-open Applications

Dr. Yamazaki is the sole inventor on the '423 and the '488 Japanese laid-open applications, which were filed in 1982 and published by the Japanese patent office in 1984. Neither reference was disclosed to the PTO during the prosecution of the '132 patent. The '423 and the '488 laid-open applications have very similar disclosures. The '423 and the '488 are directed to solar cell technology, and specifically to the efficiencies to be achieved in photoelectric devices from low levels of impurities. Both laid- open applications conclude, however, that the "present invention is also effective for an insulated gate field effect semiconductor device having an NIN junction (*i.e.*, a junction comprising, in this order, a source or drain, a channel forming region, and a source or drain) or a PIP junction, as well as for a transistor

having an NIPIN or a PINIP junction."[24] It is clear, therefore, that Dr. Yamazaki himself knew and believed that the '423 and '488 laid-open applications, though directed to solar cells, were also pertinent to TFT's.

Yet, Dr. Yamazaki testified during the hearing that he forgot that the '423 and '488 applications taught lowering impurities in insulated gate field effect semiconductor devices, and therefore he did not disclose them to the PTO in connection with the '132 patent prosecution. Specifically, he testified that because the '423 and the '488 dealt chiefly with solar cells, he thought that neither had any relevance to the '132 patent application. This contention is belied by the terms of the '423 and the '488 applications themselves, and by the convincing expert testimony of Dr. Tsai and Dr. Fonash. Most tellingly, though, Dr. Yamazaki's contention is flatly refuted by the fact that SEL referenced other works directed primarily to solar cells during its prosecution of the '132 patent, including one of Dr. Yamazaki's own U.S. solar cells patents, U.S. Patent No. 4,239,554, and an article by Magee and Carlson in a publication called "Solar Cells." Even if Dr. Yamazaki's testimony that he forgot about the specific passages contained in the '423 and the '488 applications describing their relevance to TFT's were plausible, it is not plausible that he forgot the scientific principle underlying those passages, *i.e.*, that the importance of reducing impurity levels is germane to both solar cells and TFT's.

Dr. Yamazaki also testified that he first became aware of the significance of the '423 and the '488 through a

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[24] Indeed, the claims of the '423 are not limited to solar cells, but also claim semiconductor devices. Also worth noting is that the prosecution application was protracted, extending from 1982 to a rejection on appeal in 1992.

rejection by the Japanese patent office in his corresponding '250 application.[25] The rejection, mailed on October 19, 1994, was based in part on the disclosures in Dr. Yamazaki's '423 laid-open application. Further, Dr. Yamazaki remembered Toshiba representatives suggesting, during licensing negotiations in October 1994, that the '423 and '488 applications were prior art to the '132 patent. Dr. Yamazaki testified that he then looked into the matter. Significantly, Dr. Yamazaki thereafter, in January 1995, told his licensing agent that he considered the '423 and the ' 488 references to be more material to the '132 patent than other references already disclosed to the PTO. Tellingly, he further instructed his licensing agent not to disclose the '423 and the '488 laid-open applications to I.B.M., a prospective licensee.[26] This ploy failed as during his licensing meeting with I.B.M. in March 1995, I.B.M. representatives specifically called attention to the fact that Dr. Yamazaki had failed to disclose the '423 and ' 488 applications to the PTO as prior art in the '132 proceeding. Following the meeting

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[25] Although Dr. Yamazaki initially testified that he learned in 1992 that the '250 had been rejected in part because of the '423 laid-open application, he later clarified that it was not until 1994 that the '423 application was cited as a basis for the rejection. Had Dr. Yamazaki discovered in 1992 that the '423 was a basis on which his '250 application had been rejected, he would have been immediately placed on notice of his duty to disclose the '423 in connection with his pending '132 patent application. As Dr. Yamazaki testified, the Japanese '250 application has a "one-to-one" relationship with both the '132 and the '636 patents.

[26] Specifically, in a January 1995 letter, Dr. Yamazaki instructed his licensing agent that:

> We think SEL's laid-open applications indicated in our letter of January 10, 1995 would be more relevant than any other materials. Please be careful not to disclose these laid-open applications to I.B.M.

with I.B.M., Dr. Yamazaki submitted the references to the PTO on April 20, 1995 in connection with the continuation application of the '494 application. Dr. Yamazaki also submitted the '423 and the '488 references to the PTO on June 7, 1995, in connection with the '636 patent application.

The materiality of the '423 and the '488 laid-open applications to the prosecution of the '132 application is pellucidly clear. Dr. Fonash convincingly testified that the elements in claim 7 of the '132 patent are taught in the '488 and the '423 laid open applications. The disclosures in the '423 were in fact, part of the basis on which the Japanese patent office had earlier rejected the corresponding '250 application. Thus, disclosure of the '423 and the '488 laid open applications during the '132 prosecution would have given rise to a *prima facie* case of unpatentability. They were highly material prior art.

C. Additional Omissions During the '132 and the '636 Patent Applications

Samsung, during the inequitable conduct hearing, alleged two additional instances of material withholdings by SEL during the '132 and the '636 patent applications.[27] First Samsung claims that SEL deliberately failed to disclose as prior art Japanese Patent No. 58-2073 issued to Sony ("the Sony '2073 patent"), even though it was aware that the Sony '2073 patent was a basis on which the Japanese patent office rejected its corresponding '250 patent application. Second, Samsung contends that SEL deliberately failed to disclose the

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[27] These additional allegations of inequitable conduct were raised for the first time at the hearing. Accordingly, the evidence adduced concerning these allegations is considered for the limited purpose of ascertaining SEL's motive, plan, and intent with respect to the '636 patent. See Rules 402, 403, 404(b), Fed. R. Evid.

materials produced in connection with Dr. Yamazaki's 1983 Reston Virginia speech, even though these materials discuss the importance of low levels of impurities in electronic devices.

1. The Sony '2073

Dr. Yamazaki testified that in 1992, when he originally received the rejection of the '250 Japanese laid-open application, the Sony '2073 was cited as one basis for the rejection.[28] Mr. Yamamoto, who also learned of the basis for the '250 rejection in 1992, thus initially instructed SEL's patent attorney to disclose the Sony '2073 reference to the PTO in connection with an application within the '250 application-'132-'636 chain.[29] Inexplicably, SEL later instructed its patent attorney to file an Information Disclosure Statement ("IDS") in connection with the application that omitted the Sony '2073 reference. The '250 application was finally rejected by the Japanese patent office in October 1994 based on the disclosures in the Sony ' 2073 and Dr. Yamazaki's own '423 laid-open application. Yet, the Sony '2073 was not disclosed as prior art during the prosecutions of the '132 or the ' 636 patents. And significantly, the Sony '2073 patent was not a reference that was asserted against SEL by a prospective licensee, as were the Tsai article and the '423 and '488 applications that were eventually cited to the PTO by SEL in the '636 proceeding, but omitted from the '132 proceeding.

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[28] The Japanese patent office later cited to the '423 laid-open application as an additional basis for rejection.

[29] Specifically, this was Application No. 885,643, which was filed on May 19, 1992, and which was later abandoned. *See* appendix.

Thus, by 1992, SEL was aware that the '250 application, which Dr. Yamazaki conceded has a "one-to-one" relationship with both the '132 and the '636 patents,[30] had been rejected by the Japanese patent office based in part on the Sony '2073 patent. Yet, it failed to disclose the reference to the PTO despite the specific admonitions found in Rule 56.[31] Further, Dr. Fonash testified that the Sony '2073 combined with the '423 application rendered obvious every element of Claim 1 of the '132 patent. Thus, the Sony '2073 was clearly a highly material reference that came to the attention of Dr. Yamazaki during the '132 application and well before the prosecution of the '636 application.

2. The Reston Materials

Dr. Yamazaki testified that his May 1983 speech in Reston, Virginia concerned the development of low impurity levels in the semiconductor layer. The speech was thus antecedent to, and concerned the same subject matter as, the August 1983 Tsai speech. Notably, Dr. Yamazaki conceded

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30 Both of which also rely on the '250 application for priority stemming from the '250 application's May 1984 filing date. This, of course, is significant in assessing the patentability of the invention claimed in the '132 and '636 patents.

31 In connection with an applicant's duty to disclose all information known to be material to patentability, 37 C.F.R. § 1.56 specifically "encourages" applicants to examine:

> (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
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> (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentability defines, to make sure that any material information contained therein is disclosed to the Office.

that the speech and related materials disclose the importance of low levels of impurities and "would be important" on this issue. An abstract from Dr. Yamazaki's speech was published, and he eventually published a full paper in the Journal of Non- Crystalline Solids. SEL did not disclose any of these materials to the PTO during its prosecution of either the '132 or the '636 patent applications. And significantly, unlike the references disclosed in the '636 proceeding but not in the '132 proceeding,[32] none of these materials was asserted against SEL by a prospective licensee in the course of licensing negotiations on these patents.

Dr. Yamazaki gave inconsistent testimony with regard to the materiality of his Reston speech and materials. He initially testified at the hearing that he only became aware of the importance of the Reston materials during the Spring of 1996, and even then, only considered them to be important with regard to the '204 patent. Dr. Yamazaki testified that he did not submit the materials to the PTO because the '204 patent had issued prior to the Spring of 1996. Later, however, Dr. Yamazaki seemed to retreat from this position, stating that he did not understand the Reston materials to be prior art, even with regard to the '204 patent. Further, Dr. Yamazaki stated that his discussion at Reston was in fact cumulative of other references cited during the '636 prosecution. Yet, Dr. Yamazaki also stated, inconsistently, that the one-page abstract from his Reston speech did not overlap with other references cited. In any event, the record is inconclusive on whether the Reston speech was material prior art.

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32 Such as the Tsai article and the '423 and '488 laid-open applications.

D. The '204 Patent Application

Samsung alleges two instances of inequitable conduct by SEL during its prosecution of the '204 patent. First, Samsung contends that SEL deliberately withheld reliable test results which conclusively established that prior art devices attained lower impurity levels than those claimed in the '204 patent. Second, Samsung contends that SEL knowingly overstated the efficiency levels achieved in the '204 patent in arguing for patentability.

Again, the threshold issue is the relevance of any inequitable conduct by SEL in connection with its prosecution of the '204 patent. And, in this regard, it is significant that the '204 patent is not a part of the '250 application-' 132-'636 chain. Samsung contends, however, that where inequitable conduct is found in an application that results in an issued patent, that misconduct may render a closely related patent-in-suit unenforceable. This contention is an application of what is sometimes referred to as the "infectious unenforceability" doctrine. Relying on this doctrine, Samsung contends that because the '204 patent and the '636 patent have a common inventor, common owner, similar prior art references, and a similar subject matter (*i.e.*, inventions relating to low impurity levels), inequitable conduct during the prosecution of the '204 patent may be sufficient to render the '626 patent unenforceable.

This argument, like Samsung's argument in connection with the '132 patent, also requires an extension of existing law. To date, no Federal Circuit decision has applied the infectious unenforceability doctrine based solely upon such commonalities. *See Consolidated Aluminum*, 910 F.2d at 812 (infectious unenforceability applied where inequitable conduct during prosecution of one patent

"permeated the prosecution of the other" patents-in- suit).[33] And, because SEL's inequitable conduct during its prosecution of the '636 patent application is sufficient to render the claims of the '636 patent unenforceable, this issue need not be reached.

Moreover, the alleged misconduct during the prosecution of the '204 patent is too remote from the patent-in-suit to be probative of SEL's plan, motive, intent and pattern and practice with regard to the '636 patent. *See* Fed. R. Evid. 402, 403, & 404(b). The information allegedly withheld and mischaracterized during the prosecution of the '204 patent is not information that was material to the prosecution of the '636 patent. And, there is no suggestion that the alleged misconduct was connected to, or of consequence, during SEL's subsequent prosecution of the '636 patent. Thus, Samsung has failed to establish the relevance of the alleged misconduct with respect to the patent-in-suit.

IV.

It is clear that SEL knowingly made several highly material withholdings and mischaracterizations during the

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[33] In *Consolidated Aluminum*, the Federal Circuit found that the patentee's inequitable conduct during the prosecution of one patent enabled it to make "argument[s] it could not have made" in prosecuting the applications that became the other patents-in-suit. 910 F.2d at 811. Therefore, the patentee's misconduct "permeated the prosecution of the other patents-in-suit." *Id.* at 812. On this basis, the court held that the inequitable conduct in prosecuting the one patent had the "immediate and necessary relation" to the equity sought be the patentee, namely the enforcement of the other patents-in-suit, to render them similarly unenforceable. *Id.* at 811-812. In the instant case, there is no such relation between the alleged misconduct during the prosecution of the '204 patent and the sought after enforcement of the '636 patent.

prosecution of its '132 and '636 patent applications. The issue of intent remains. And in this regard, it is worth restating that the "materiality of an undisclosed reference does not presume an intent to deceive." *Halliburton*, 925 F.2d 1435. Yet, where, as here, a patentee faces a "high level of materiality and clear proof that it knew or should have known of that materiality, it can expect to find it difficult to establish 'subjective good faith' sufficient to prevent the drawing of an inference of intent to mislead." *Critikon*, 120 F.3d at 1257. In such circumstances, a "mere denial of intent to mislead (which would defeat every effort to establish inequitable conduct) will not suffice." *Id.* In the final analysis, intent is a judgment that must be made on the totality of the circumstances; courts must determine whether an applicant's conduct, when "viewed in light of all the evidence, including evidence indicative of good faith, ... is culpable enough to require a finding of intent to deceive." *Halliburton*, 925 F.2d at 1443.

In the instant case, a review of the record as a whole points clearly and convincingly to the conclusion that SEL's conduct before the PTO with regard to the '636 is sufficiently culpable to warrant a finding of intent to deceive. The evidence clearly reveals that Dr. Yamazaki is an accomplished inventor who is intimately involved in the prosecution of his patent applications. As he testified, "patents are my life. They are very important to me." Securing a patent on the '636, given its revenue generating potential, was particularly important to Dr. Yamazaki and his company. In pursuit of this goal, the evidence shows clearly that Dr. Yamazaki compromised his fundamental duty of candor to the PTO.

Thus, SEL submitted to the PTO a full Japanese language version of the Canon '968 application, but only a one-page partial English translation. The partially translated

portion of Canon disclosed only one of the elements of the asserted claims in the '636 application, the silicon nitride gate insulator. Further, SEL identified the relevance of the Canon '968 application to the PTO only as "disclos[ing] the use of silicon nitride for a gate insulating layer of a thin film transistor." Yet, clear and convincing expert testimony established that the untranslated portions of the Canon '968 application disclosed other elements of the structure found in the '636 patent; *i.e.* the same intrinsic semiconductor layer, the same sandwich structure, and the admonition to avoid impurities. The Canon '968 thus contained the most complete combination of the elements described in the '636 patent. These same elements, such as the limitation of an intrinsic semiconductor layer, were used by SEL to distinguish the '636 patent application from prior art. And, given that Dr. Yamazaki decided to submit just a partial translation of Canon, it is simply not credible that Dr. Yamazaki was unaware that the untranslated portions of the Canon '968 application disclosed the additional elements[34] described in his '636 patent application. These elements, of course, formed a basis for SEL's patentability argument.

SEL contends that its decision to provide the PTO with a full Japanese language version of the Canon '968 application and a partial English translation, along with 90 other references of prior art, is indicative of its good faith compliance with the duty to disclose. Yet, far more plausible, on this record, is that SEL's submission of a partial translation was an effort to conceal from the PTO the full importance of the Canon '968 application; *i.e.*, that it disclosed the same structure found in the '636 patent, and not merely one of its elements. While SEL correctly notes that the patent examiner could have secured a full translation

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34 That is, in addition to the silicon nitride gate insulator.

from within the PTO,[35] SEL's brief statement of relevance identifying only the silicon nitride gate as pertinent, coupled with the partial translation disclosing that element, certainly removed any incentive to do so. Thus, the evidence points clearly and convincingly to the conclusion that (1) SEL knew that a full translation of Canon, which disclosed the same TFT structure as described in the '636, would decrease the likelihood of the '636 patent being issued, and (2) it knowingly concealed the full importance of the Canon '968 reference in an effort to mislead the PTO.

SEL also disclosed to the PTO the Tsai article, which, as expert testimony clearly and convincingly established, is highly material to the subject matter of the '636 patent, as it teaches the making of amorphous silicon with impurity concentrations within the levels recited in all claims of the '636 patent. Also clear from the record is that SEL's efforts to distinguish the Tsai article, based on its application primarily to solar cells and on the perpendicular direction of the current flow, were not only invalid, but also inconsistent with its own position on the subject. Thus, in a January 1995 letter to his licensing agent for the '132 patent, Dr. Yamazaki concedes that "we do not think there is a more relevant reference than C.C. Tsai's abstract of August 22, 1983 and his (sic) papers of December, 1983." In his ' 423 and '488 laid-open applications and his '400 patent application, Dr. Yamazaki clearly recognized that inventions directed to low levels of impurities in solar cells are highly relevant to TFT's. Moreover, SEL's argument before the PTO is flatly belied by the fact that in this very infringement action, SEL originally asserted two patents against Samsung that are directed mainly to low levels of impurities in solar cells, the '204 and the '400 patents. Thus, the record points clearly

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35 *See* Manual of Patent Examining Procedure § 901.05(d).

and convincingly to the conclusion that in distinguishing the Tsai article before the PTO, SEL knowingly advanced a meritless argument in an effort to mislead the PTO.[36]

Moreover, SEL's motive for engaging in such conduct is illuminated by Dr. Yamazaki's testimony of why, following the issuance of the '132 patent, he felt compelled to file the application which led to '636 patent. In essence, Dr. Yamazaki testified that he knew, after meeting with several prospective licensees who called attention to SEL's withholdings during the '132 prosecution, that his potentially lucrative patent was vulnerable. To remedy this problem, he decided not to seek reissue of the '132 patent,[37] but to pursue a new patent on the same invention that would be immune from the problems that infected the '132 patent. Thus, SEL filed and pursued the '636 patent. In doing so, SEL was not required to surrender the '132 patent or to disclose the specific errors that were made in connection with the prosecution of that patent.[38]

Yet, SEL still had to avoid the prior art references that it was now forced to disclose to the PTO, such as the

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[36] It is worth noting that advocacy before the PTO is appropriate. But, there is a line between legitimate advocacy in accordance with the duty of candor, and advocacy that the applicant surely knows has a propensity to mislead the examiner. Here, that line was crossed.

[37] Reissue is the well-established procedure available to patentees who have inadvertently and without any deceptive intention made errors before the PTO. This procedure first requires surrender of the patent at issue as well as a specification of errors or omissions previously made. *See* 35 U.S.C. § 251.

[38] Note, however, that the result reached here does not depend in any way on SEL's decision not to surrender and seek reissue of the '132 patent, nor does this decision suggest that SEL had a duty to do so.

Tsai article and the '423 and the '488 applications. Thus, SEL mischaracterized the Tsai article as applying primarily to solar cells. Further, as Dr. Yamazaki testified, SEL had to limit the claims of the '132 patent.[39] Specifically, the '636 patent is limited to an IGFET with a *silicon nitride* gate, and an *intrinsic* silicon layer, and a *sandwich* structure in the channel region, while the claims in the '132 patent are not so limited. Of all the references cited to the PTO in connection with the '636 patent application, only the Canon '968 application describes a TFT containing each of these three elements. Clearly, then, the Canon '968 was a highly material reference to the '636 patent application, which posed a significant threat to rendering the '636 unpatentable. It is simply implausible, under the circumstances, that SEL was not aware of this fact. Rather, the evidence points clearly and convincingly to the conclusion that SEL's awareness of this fact motivated its decision to submit just the partial English translation in an effort to hide material information.

Finally, when viewed in conjunction with SEL's conduct during the prosecution of the '132 patent application, the record as a whole reflects a clear pattern and practice of initial nondisclosure, followed by incremental disclosure only when compelled by the circumstances to do so, followed, at times, by mischaracterization. Thus, SEL intentionally withheld four material prior art references; the Tsai article, the '423 and the '488 laid-open applications, and the Sony '2073 patent. The record as a whole points clearly and convincingly to the fact that SEL knew of these materials during the pertinent period. Yet, SEL disclosed the

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[39] Specifically, when asked why he limited the claims of the '636, Dr. Yamazaki testified that "there were these various references. These references were to be avoided, but I don't believe that the essential nature of the invention also [was] changed."

references to the PTO only when forced to do so by a prospective licensee. Thus, the Tsai article and the ' 423 and '488 applications were cited to the PTO only after these matters were asserted by prospective American licensees during negotiations, whereas the Sony '2073, which was called to SEL's attention by the Japanese patent office and not a potential licensee, was never disclosed to the PTO.

And, after receiving an initial rejection of the '132 patent based on the impurity levels in the Nakagawa '477 patent, SEL submitted to the PTO an amendment which erroneously calculated the level of impurities disclosed in the Nakagawa '477 patent as 4×10^{19} atoms/cm^3. The error, for which no satisfactory explanation was provided, conveniently provided SEL with a basis from which to overcome the Nakagawa '477 patent. And when prosecuting the '636 patent application, the patentability of which was dependant on its specific limitations combined with its impurity levels, SEL concealed the importance of the Canon '968 application and disingenuously distinguished Tsai.

The evidence demonstrates a sophisticated, subtle, and consistent effort to hide the ball from the PTO in a manner plainly at odds with an applicant's duty of candor, good faith, and honesty. The record, as a whole, simply contains too many instances of information withheld, and references mischaracterized, to reach any conclusion other than that the withholding and mischaracterizations were part of an intentional, not accidental or inadvertent, plan to mislead the PTO.

V.

During its prosecution of the '636 patent application, SEL knowingly made two highly material withholdings and/or mischaracterizations. The prior art references

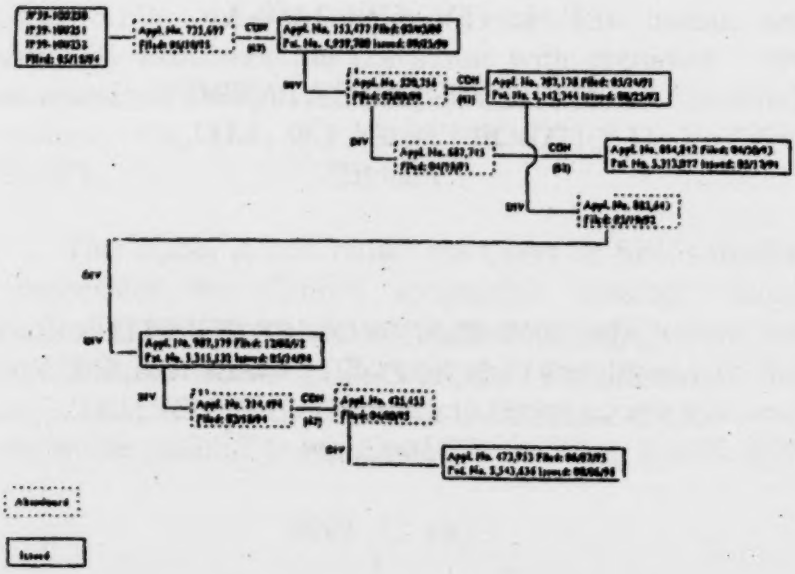
withheld and/or mischaracterized were not trivial, but rather were central to the essential question of patentability. The evidence points clearly and convincingly to the conclusion that this conduct was performed with the intent to deceive the PTO. Consideration of SEL's conduct in connection with the prosecution of the '132 patent only bolsters this conclusion. Thus, SEL engaged in inequitable conduct during the prosecution of the '636 patent, and accordingly, the entire patent is unenforceable.

For the foregoing reasons, SEL's patent infringement suit against Samsung must be dismissed with prejudice.

An appropriate order shall issue.

[Appendix to District Court Opinion]

USP 5,543,636



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APPENDIX H

United States District Court, E.D. Virginia, Alexandria Division.

No. CIV. A. 96-1460-A.

SEMICONDUCTOR ENERGY LABORATORY, CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO. LTD., SAMSUNG ELECTRONICS AMERICA, INC. AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

Oct. 23, 1998.

MEMORANDUM OPINION

ELLIS, District Judge.

In this patent infringement action, plaintiff Semiconductor Energy Laboratory Co. ("SEL") alleged that defendants Samsung Electronics, Samsung Electronics America, and Samsung Semiconductor, (collectively "Samsung") made or sold active matrix display units that infringed SEL's U.S. Patent No. 5,543,636 ("the '636 patent"). Among its defenses to SEL's charge of infringement, Samsung alleged that the '636 patent was unenforceable owing to SEL's inequitable conduct before the Patent and Trademark Office ("PTO"). Between March 17, 1998 and April 3, 1998, a seven-day hearing was held on

Samsung's affirmative defense of inequitable conduct, during which time the parties presented fact and expert opinion testimony from several witnesses, offered into evidence numerous exhibits, and submitted written and oral arguments. By Memorandum Opinion and Order dated April 15, 1998, the Court found that SEL engaged in inequitable conduct during the prosecution of the '636 patent, and accordingly dismissed the complaint with prejudice. *See Semiconductor Energy Laboratory, Co., Ltd. v. Samsung Electronics Co.*, Ltd., 4 F. Supp. 2d 477 (E.D. Va.1998) ("*SEL I*").

This matter is now before the Court on SEL's motion to reconsider the Court's inequitable conduct ruling. Specifically, SEL contends that numerous legal errors and factual misunderstandings formed the foundation of this Court's April 15, 1998 Memorandum Opinion, and that such errors entitle plaintiff to relief under Rule 59(e), Fed. R. Civ. P.[1]

I.

Rule 59(e) permits an aggrieved party to file a motion to alter or amend a judgment within ten days of its entry. Although the Rule itself provides no guidance on when district courts may grant such a motion, the Fourth Circuit[2] has identified three grounds for amending a prior judgment:

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1 Although SEL's "Motion for Reconsideration of Inequitable Conduct Ruling" failed to invoke a specific Federal Rule of Civil Procedure, a motion for reconsideration, filed within ten days of the entry of judgment, is properly treated as a motion to alter or amend the judgment under Rule 59(e), Fed. R. Civ. P. *See In re Burnley*, 988 F.2d 1, 2-3 (4th Cir.1992).

2 The Federal Circuit generally defers to "regional circuit law when the precise issue involves an interpretation of the Federal Rules of Civil

> (1) to accommodate an intervening change in controlling law; (2) to account for new evidence not available at trial; or (3) to correct a clear error of law or prevent manifest injustice.

E.E.O.C. v. Lockheed Martin Corp., 116 F.3d 110, 112 (4th Cir.1997) (citing *Hutchinson v. Staton*, 994 F.2d 1076, 1081 (4th Cir.1993)).

In the instant case, SEL does not assert the first ground as a basis for relief, but rather relies on the second and third. Yet, reliance on the second ground is misplaced, for "new evidence" must be "newly discovered since the judgment was entered." *Boryan v. United States*, 884 F.2d 767, 771 (4th Cir.1989). SEL's evidence does not satisfy this definition.[3] Thus, because "[e]vidence that is available to a party prior to entry of judgment . . . is not a basis for granting a motion for reconsideration as a matter of law,"[4] SEL must

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Procedure or the local rules of the district court." *Biodex Corp. v. Loredan Biomedical, Inc.*, 946 F.2d 850, 857 (Fed. Cir. 1991).

[3] SEL relies heavily in its motion for reconsideration on numerous documents not presented at trial, specifically, (i) several documents from patent prosecution files, (ii) two declarations, one from an individual never previously identified, and (iii) a supplemental report of one of Samsung's experts. Yet the record reveals, and SEL does not deny, that the evidence now offered in support of its Rule 59(e) motion was either in SEL's possession prior to trial or was attainable by SEL prior to trial.

[4] *See Boryan*, 884 F.2d at 771. A district court may, in its discretion, accept material that is not technically "new evidence," provided that a party's failure to produce it initially was justified. *See RGI, Inc. v. Unified Indus., Inc.*, 963 F.2d 658, 662 (4th Cir.1992). This is not such a case. SEL had ample notice of Samsung's inequitable conduct allegations, and offers "no justified reason" why these materials were not produced during the seven day hearing. *See id.*

rely on the third ground as a basis for Rule 59(e) relief. Therefore, to win Rule 59(e) relief, SEL must establish that there has been a clear error of law, or that a manifest injustice will result from enforcement of this Court's April 15, 1998 Order. *See Lockheed Martin*, 116 F.3d at 112.[5] SEL succeeds in neither respect. First, SEL asserts two arguments with respect to its submission of a partially translated foreign application based on purportedly clear errors of law. But as this opinion reflects, (i) the Court correctly applied the right rule for "cumulative evidence" and (ii) PTO Rule 98(a)(3) does not excuse SEL's conduct. Second, SEL points out that the previous opinion proceeds on a mistaken assumption about which patent prosecution included certain misrepresentations and arguments made with respect to the Tsai reference. Nonetheless, this mistake of fact does not affect the result reached. Under settled principles of law, and sensible extensions of these principles, the same result obtains, even if, as it now appears, these arguments were made during the prosecution of the '455 application (No. 425,455) and the '494 application (No. 214,494) rather than the '636 patent.[6]

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5 SEL argues that its post-judgment declarations establish that the Court's ruling was based on an erroneous understanding of the evidence, and that consideration of these declarations is required to prevent a fundamental miscarriage of justice. Of course, the declarations in issue would be properly considered on those grounds. *See Lockheed Martin*, 116 F.3d at 112. Yet, rather than reveal any such error, the declarations submitted here merely reveal SEL's continued disagreement with this Court's findings. Indeed, the declarations advance essentially the same arguments that were advanced by SEL's experts at the hearing and ultimately found unpersuasive by the Court. *See SEL*, 4 F. Supp. 2d at 482, n. 8.

6 SEL also asserts that

> (i) the Court's treatment of the Sony '2073 patent was legal error,

II.

A. The Canon '968 Application

In *SEL I*, the Court found that SEL engaged in inequitable conduct before the PTO in connection with its submission to the PTO of the Canon '968 application when it chose to submit a partial translation and a summary that together concealed the materiality of the Canon '968 application. *See SEL*, 4 F. Supp. 2d at 494-95. SEL, of course, disagrees. It argues first that the Court's finding that the Canon '968 application was material, and hence not cumulative of other information before the PTO, was based on an improper legal standard. Second, SEL argues that its submission of a partial translation of the Canon '968 application that was already in existence cannot constitute inequitable conduct as a matter of law. Both arguments are meritless and warrant no Rule 59(e) relief.

(ii) the finding of prima facie obviousness from the combination of the Japanese laid-open Application No. 56-135968, assigned to Canon K.K. (the "Canon '968 application") and a 1983 article by Dr. C.C. Tsai, titled "Amorphous Si Prepared in a UHV Plasma Deposition System" (the "Tsai reference" or "Tsai article") was legal error,

(iii) estoppel precludes Samsung from arguing that the Canon '968 Application is not cumulative evidence,

(iv) the Court's finding regarding the '636 IDS's summary of the Canon '968 application is an error of fact and law,

(v) the Court's understanding of the '636 patent's claim is legal error, and (vi) SEL's arguments about the Tsai reference were not frivolous or inconsistent.

Yet, these arguments are mere reassertions of arguments advanced and rejected in *SEL I*, and thus are inappropriate on a Rule 59(e) motion and need not be addressed again here.

1. The Canon '968 Application Was Not Cumulative

It is undisputed that information that is cumulative to information already of record is not material to patentability. 37 C.F.R. § 1.56. Also essentially undisputed is that, as noted in *SEL I*, "a withheld reference may be highly material when it discloses a more complete combination of relevant features, even if those features are before the patent examiner in other references." *SEL*, 4 F. Supp. 2d at 482 (citing *Molins*,[7] *LaBounty*,[8] *In re Jerabek*[9]). SEL contends that the Court oversimplified the standard in its materiality analysis by simply counting the number of elements disclosed in the Canon '968 application without any consideration for whether the disclosure of that combination was actually significant. Yet, SEL is mistaken. The fact that no other reference before the examiner contained as complete a combination of the '636 patent's elements as in the untranslated portions of the Canon '968 application was, of course, central to the Court's conclusion that the Canon '968 application was not merely cumulative. *See id.* at 484. But the conclusion was additionally informed by the fact that the absence of a fully translated Canon '968 application before the PTO enabled SEL to make arguments in support of

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[7] *See Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1180 (Fed. Cir. 1995) (reference material where it showed a combination of the elements for which the examiner had relied upon two separate references to reject the patent application claims).

[8] *LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n*, 958 F.2d 1066, 1075-76 (Fed. Cir. 1992) (undisclosed items were material when they disclosed "more relevant features" than the cited items).

[9] *In re Jerabek*, 789 F.2d 886, 890 (Fed. Cir. 1986) (withheld reference material when no single piece of cited prior art taught the combination present in the reference).

patentability that it otherwise would not have been able to make. *See id.* at 494. Thus, contrary to SEL's assertion, the Court did not simply apply a "mathematical formula" to determine materiality.[10]

2. PTO Rule 98(c) Does Not Excuse SEL's Inequitable Conduct

In connection with its '636 patent application, SEL submitted (i) a full 29-page Japanese language version of the Canon '968 application, (ii) a one-page partial translation of the Canon '968 application disclosing the use of a silicon nitride gate insulator in a thin film transistor ("TFT"), and (iii) a statement describing the Canon '968 application's relevance to the ' 636 patent as " 'disclos[ing] the use of silicon nitride for a gate insulating layer of a [TFT].' " *See SEL*, 4 F. Supp. 2d at 483. Yet, as *SEL I* noted, the Canon '968 application's relevance to the patentability of the invention claimed in the '636 patent was far more substantial. *See id.* Indeed, the evidence adduced at trial was clear and convincing that the Canon '968 application disclosed other elements of the invention claimed in the '636 patent, elements which formed a basis for SEL's patentability argument.[11] *See id.* 4 F. Supp. 2d at 494. In finding

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[10] While SEL may disagree with the Court's application of the cumulative evidence standard, "mere disagreement does not support a Rule 59(e) motion." *See Hutchinson*, 994 F.2d at 1081.

[11] Specifically, the untranslated portion of the Canon '968 application described the same TFT structure that is found in the '636 patent: a structure with the same intrinsic semiconductor layer made from amorphous silicon; the same channel region sandwiched between the insulators; and (in both the translated and the untranslated portions), the same silicon nitride gate insulator as claimed in the '636 patent. *See SEL*, 4 F. Supp. 2d at 483. The untranslated portions of the Canon ' 968 application also provided the "frequent admonitions to prevent or limit atmospheric impurities in semiconductor materials, which provide an

inequitable conduct, the Court concluded that SEL knew that the untranslated portions of the Canon ' 968 application disclosed these additional elements, and that SEL deliberately attempted to conceal the true significance of the Canon '968 application to ensure the issuance of the '636 patent. *See id.*

In its motion to reconsider, SEL argues unpersuasively that because the partial translation of Canon was prepared in connection with a prior patent application, and because its submission was thus required by Rule 98(c), 37 C.F.R. § 1.98(c), SEL's conduct in this regard cannot constitute inequitable conduct. In relying on Rule 98(c) to excuse the failure to submit a fully translated version to the PTO, SEL places more weight on the rule than it can bear. Rule 98(c) requires an applicant to submit any translations of a reference that they might possess. But that rule provides a floor for required submissions of translations of foreign applications, not a ceiling; it is by no means an excuse or license for concealing material portions of a prior art reference. Yet, SEL's submission of the partial translation combined with its brief statement of relevance does just that.[12] Thus, reliance on Rule 98(a)(3) affords SEL no relief from the effects of its conduct.

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express suggestion to employ teachings such as those found in the Tsai article or in the '423 or the '488 applications to reduce carbon, oxygen and nitrogen impurities below the levels claimed in the '636 patent." *See id.* Thus, the Court found by clear and convincing evidence that the "untranslated portions of the Canon '968 application contained information highly material to the prosecution of the '636 patent application as they, together with other information, establish a prima facie case of unpatentability." *See id.* at 484.

12 *See SEL*, 4 F. Supp. 2d at 494 ("SEL's brief statement of relevance identifying only the silicon nitride gate as pertinent, coupled with the

In short, SEL's inequitable conduct with respect to the Canon '968 is an adequate and independent basis for finding the '636 patent unenforceable as a result of inequitable conduct;[13] SEL's arguments to the contrary are meritless.

B. The Tsai Reference

SEL I proceeded on the premise that misrepresentations concerning the Tsai reference were made with respect to the '636 patent application, whereas in fact, they were made with respect to the related '455 and '494 applications.[14] Given this, SEL argues, the

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partial translation disclosing that element, certainly removed any incentive [for the examiner to secure a full translation].").

[13] In *SEL I*, the Court found that credible expert testimony convincingly established that the fully translated Canon '968 application, when combined with the Tsai reference, rendered obvious the asserted claims of the '636 patent. *See SEL*, 4 F. Supp. 2d at 484. Because the Tsai article did not individually create a prima facie case of obviousness, the failure to submit a fully translated version of the Canon '968 application is in and of itself sufficient to justify a finding of inequitable conduct.

[14] *SEL I* set forth in some detail the facts regarding the relationship of some of the relevant patents and patent applications and attached a diagram which clarifies these relationships. *See SEL*, 4 F. Supp. 2d at 480 and Appendix. In summary, the '636 patent results from continuation and divisional applications from the application that issued as the '132 patent. Specifically, the '494 application was a divisional application of the patent application that became the '132 patent; the '455 application was filed as a continuation application of the '494 application pursuant to PTO Rule 62, thus causing the automatic abandonment of the '494 application. The '953 application, which eventually became the '636 patent, was filed as a divisional application of the '455 application, pursuant to PTO Rule 60. Thus the priority date of the '636 patent relies on the chain of applications that includes the '132 patent, the '494 application and the '455 application. Further, the subject matter of the '636 patent is so closely related to the '132 patent that a terminal disclaimer was filed with respect to the '636 patent, giving it the

misrepresentations concerning the Tsai reference cannot support a finding of inequitable conduct with respect to the '636 patent, and SEL is therefore entitled to relief.[15]

As *SEL I* makes clear, SEL's arguments regarding the Tsai article constituted inequitable conduct because they were (i) knowingly contrary to SEL's own knowledge, (ii) invalid under scientific principles certainly known to Dr. Yamazaki, and (iii) inconsistent with SEL's other positions before the PTO. SEL, 4 F. Supp. 2d at 484-86.[16] Equally

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expiration date of the '132 patent. Both the '132 and the '636 patents rely upon the May 18, 1984 filing date for SEL's Japanese laid-open Application No. 59100250 ("the '250 application"), which has a "one-to-one" relationship with both the '132 and '636 patents. Both the '132 and the '636 patents have the same inventor (Dr. Yamazaki), owner (SEL), disclosure, specification, and title.

[15] SEL also contends that it is clear legal error to base a finding of inequitable conduct on arguments presented to the PTO in support of a patent application. SEL bases this contention on a misinterpretation of two distinguishable cases, neither of which stands for the proposition that, as a matter of law, arguments made to the PTO cannot constitute inequitable conduct. *See Akzo N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471 (Fed. Cir. 1986); *Hughes Aircraft Co. v. United States*, 215 U.S.P.Q. 787, 1982 WL 36740 (Ct. Cl. Trial Div.1982), *aff'd in part, rev'd in part*, 717 F.2d 1351 (Fed. Cir. 1983). In *Akzo*, the Federal Circuit held that where neither a "proved material misrepresentation [n]or a proved intent to mislead" exists, the moving party does not meet its burden of proving inequitable conduct. 808 F.2d at 1482. Thus, by implication where, as here, material misrepresentations are made in a position advocated to the PTO with intent to mislead, inequitable conduct does exist. Likewise, Hughes Aircraft provides no support for SEL's contention. There, unlike the case at bar, the Court of Claims expressly found that the statements quoted by the defendant were neither untrue nor inconsistent with the defendant's prior positions. 215 U.S.P.Q. at 805, 1982 WL 36740.

[16] Specifically, SEL's argument that the teachings of the Tsai article were primarily applicable to solar cells, not TFTs, was "contrary to its own knowledge, and inconsistent with its own previously stated position

clear is that these arguments constitute inequitable conduct in the context of the prosecution of the related '494 and '455 patent applications, for these applications, like the related '636 patent application, were prosecuted (i) long after the relevant knowledge was available and (ii) while SEL was advocating inconsistent positions to the PTO with respect to the U.S. No. 5,521,400 ("'400") patent.[17]

The question now presented, therefore, is whether inequitable conduct in the course of prosecuting the '494 and '455 applications can serve to invalidate the '636 patent, given that these applications are in the direct chain of divisional and continuation applications leading ultimately to the issuance of the '636 patent. More generally, the question is whether a patent can be rendered unenforceable as a result of inequitable conduct that occurred in the prosecution of related divisional and continuation applications earlier in the chain of applications that spawned the patent in issue. Analogous Federal Circuit authority points persuasively to

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on an important issue before the PTO." *SEL*, 4 F. Supp. 2d at 484- 85. Further, SEL's attempt to distinguish the article on the basis of the direction of the current had no validity, and Dr. Yamazaki, SEL's president and majority shareholder, the inventor of the '636 patent, and a distinguished solid state physicist, surely knew that. *Id.*

[17] The '494 application was filed in 1994; the '455 application was filed in 1995. The Tsai article, which would have been understood by persons of ordinary skill in the pertinent art to apply to TFT's as well as solar cells, was available from 1983. *See SEL*, 4 F. Supp. 2d at 489. By 1984, through the '423 and '488 Japanese laid-open applications, Dr. Yamazaki had demonstrated that he recognized "a clear connection between solar cells and TFT's in that the importance of reducing impurities is applicable to both." *Id.* at 485. Moreover, the application for the '400 patent was filed in November 1994, and issued in May 1996, and thus any arguments SEL presented to the PTO during the prosecution of that patent must have been essentially contemporaneous with the arguments advanced in the prosecution of the '455 and '494 applications.

the conclusion that under appropriate circumstances, inequitable conduct earlier in the direct patent chain can render the related ultimately-issued patent unenforceable.[18]

Analysis of the issue appropriately begins with *Fox Industries, Inc. v. Structural Preservation Systems, Inc.*, 922 F.2d 801 (Fed. Cir. 1990), where the Federal Circuit broadly enunciated the guiding principle that "[t]he duty of candor extends through the patent's entire prosecution history," and that a breach of the duty of candor "may render unenforceable all claims which eventually issue from the same or a related application." 922 F.2d at 803-04 (emphasis added).[19] This principle is not without limits. Pertinent Federal Circuit authority also teaches that the mere occurrence of inequitable conduct in connection with an application within a chain of applications is not enough to invalidate a patent issued as a result of a later application in

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[18] In any event, because SEL's inequitable conduct with respect to the Canon '968 application constituted an independent and adequate ground for the result reached in *SEL I*, no manifest injustice would result from enforcement of the April 15, 1998 Order holding the '636 patent unenforceable. Thus SEL's contention here concerning the Tsai reference, even if valid, would not satisfy the threshold requirement under Rule 59(e), Fed. R. Civ. P.

[19] Fox involved a chain of related applications, the last of which led to the issuance of the challenged patent. There, the original patent attorney knowingly withheld material prior art during the prosecution of earlier applications, but did not draft the pertinent claims as ultimately issued. *See Fox*, 922 F.2d at 803-04. The district court nonetheless found, and the Federal Circuit affirmed, that the attorney's failure to disclose that material prior art constituted inequitable conduct as to the ultimately-issued patent. *See id.* 922 F.2d at 804. The court also affirmed the district court's conclusion that the patent's inventor had intentionally withheld the material prior art throughout the chain of applications, including the application that led to the issuance of the challenged patent. *Id.*

the chain; instead, the earlier inequitable conduct in the chain must be related to the targeted claims of the ultimately-issued patent or patents sought to be enforced.[20] Thus, a patent that issues from a divisional or continuation application may be held unenforceable where (i) there is inequitable conduct with respect to the prosecution of an earlier related application in the chain leading to the challenged patent and (ii) the inequitable conduct relates to the asserted claims of that patent.[21] Were this not the rule, a party committing inequitable conduct could avoid the consequences of that conduct through a scheme of divisional and continuation applications. The law does not countenance such a manipulation of the patent process.

Application of this principle to the instant facts[22] compels the conclusion that SEL's inequitable conduct in

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20 *See Baxter Int'l, Inc. v. McGaw*, 149 F.3d 1321, 1332 (Fed. Cir. 1998) (patent issued from divisional application not unenforceable "where the issued claims have no relation to the omitted prior art"); *Consolidated Aluminum Corp. v. Foseco Int'l Ltd.*, 910 F.2d 804, 809-11 (Fed. Cir. 1990) (patents-in-suit unenforceable where inequitable conduct in original application allowed successful arguments in prosecution of patents-in-suit not otherwise possible); *see also East Chicago Machine Tool Corp. v. Stone Container Corp.*, 181 U.S.P.Q. 744, 748 (N.D. Ill.1974), *vacated in part on other grounds*, 185 U.S.P.Q. 210 (N.D. Ill.1974); *Molins PLC v. Textron, Inc.*, 821 F. Supp. 1551, 1581 (D.Del.1992), *aff'd in part, vacated in part on other grounds*, 48 F.3d 1172, 1187 (Fed. Cir. 1995); *Jack Frost Laboratories, Inc. v. Physicians & Nurses Mfg. Corp.*, 901 F. Supp. 718, 729 (S.D.N.Y. 1995), *aff'd*, 124 F.3d 229, 1997 WL 592814 (Fed. Cir. 1997).

21 This principle is also consistent with PTO Rule 56, 37 C.F.R. § 1.56, which makes clear that no patent will be granted on any application "in connection with which" fraud or intentional misconduct occurred or was attempted.

22 Those facts are as follows: SEL, in prosecuting the '494 and ' 455 applications, intentionally distinguished the Tsai article and knowingly minimized its significance on the basis of invalid arguments. *See supra*

connection with the '494 and ' 455 applications and the earlier '132 patent[23] renders the '636 patent unenforceable. Not only are the omitted prior art and misrepresentations directly relevant to the asserted claims of the '636 patent, but SEL's motivation in prosecuting that patent, *i.e.* to conceal its prior inequitable conduct rather than cure it, links the issued patent itself directly to the inequitable conduct. In the circumstances, therefore, SEL's inequitable conduct in connection with the '494 and '455 applications and the '132 patent fatally infects the '636 patent.

Seeking to avoid this result, SEL argues that it is enough that it complied with the PTO's disclosure requirements during the prosecution of the specific continuation application leading to the '636 patent. This argument fails factually and legally. It ignores SEL's inequitable conduct concerning the Japanese Canon '968 application, and beyond this, is based on an incorrect understanding of the applicable disclosure requirements. It is not enough that by the time the '636 patent issued, SEL had

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n. 17 and accompanying text. Moreover, in its prosecution of the '132 patent, SEL knowingly (i) misrepresented the atomic density of amorphous silicon in order to persuade the examiner to allow the claims over the Nakagawa '477 application, and (ii) failed to disclose highly material prior art, specifically the Tsai reference and the '423 and '488 Japanese laid-open applications. *SEL*, 4 F. Supp. 2d at 486-91. *SEL I* also makes clear that Dr. Yamazaki realized that SEL's conduct left the '132 patent vulnerable, and sought a new patent, the '636 patent, hoping to insulate the '636 patent from the defects infecting the ' 132 patent that resulted from such conduct. *SEL*, 4 F. Supp. 2d at 495.

[23] The inequitable conduct associated with the prosecution of the '132 patent was previously treated only as Rule 404(b) evidence. *See SEL*, 4 F. Supp. 2d at 487, n. 16 and accompanying text. Under the principles elucidated here, inequitable conduct in the course of the prosecution of the '132 patent constitutes an additional basis on which the '636 patent is unenforceable.

disclosed the Tsai reference, the correct figure for silicon atomic density and the '423 and '488 Japanese laid-open applications, and had also apparently ceased actively advocating the invalid arguments with respect to the Tsai article. Settled authority makes clear that the duty of candor requires more to cure inequitable conduct. Specifically, *Rohm & Haas Co. v. Crystal Chem. Co.*, 722 F.2d 1556 (Fed. Cir. 1983), teaches that the applicant must (i) expressly advise the PTO of the misrepresentation's existence, (ii) advise the PTO of what the actual facts are and make clear that further examination in light thereof may be required if any PTO action has been based on the misrepresentation, and (ii) establish patentability on the basis of the factually accurate record. *Rohm & Haas*, 722 F.2d at 1572. In support of these cure requirements, the Federal Circuit stated,

> It does not suffice that one knowing of misrepresentations in an application or in its prosecution merely supplies the examiner with accurate facts without calling his attention to the untrue or misleading assertions sought to be overcome, leaving him to formulate his own conclusions.

Id., 722 F.2d at 1572.[24] Inequitable conduct earlier in a chain of related patent applications must be cured in accordance with *Rohm & Haas* or it will continue to infect the process; cure cannot be achieved through manipulation of patent prosecution procedures, such as canceling or amending

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[24] In *Rohm & Haas*, the record was devoid of any evidence showing that the PTO had been told that any misrepresentations had been made and precisely where they had been made. Given this, the court held that the "cure" was insufficient as a matter of law. *Id.*, 722 F.2d at 1572-73.

claims or filing continuation and divisional applications.[25] Nothing in the record suggests that SEL took any steps to cure the directly related inequitable conduct; because it pursued a separate, related application instead of seeking reissuance under 35 U.S.C. § 251, for which it was probably not eligible,[26] SEL did not surrender and amend the '132 patent, identify its previous omissions, comply with the requisite cure requirements and establish patentability on a clearly corrected record.

In these circumstances, the inequitable conduct that occurred earlier in the patent chain renders a later patent unenforceable. Thus, the inequitable conduct in the '636 patent chain, *i.e.* in the prosecution of the '132 patent and the '494 and '455 patent applications, provides an additional alternate and independent ground on which the '636 patent is unenforceable.

III.

SEL has not established any clear error of law in connection with the April 15, 1998 Order rendering the '636

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[25] *See, e.g., Baxter*, 149 F.3d at 1331 (Fox reflects principle that "omission of a reference material to certain claims cannot be cured simply by canceling or amending these claims during prosecution so that they do not issue in the same form in which they were drafted"); *Driscoll v. Cebalo*, 731 F.2d 878, 884 (Fed. Cir. 1984) (nondisclosure of material prior art during prosecution of parent application not excused by substituting related claims in later application without calling to PTO's attention earlier failure to disclose).

[26] Under 35 U.S.C. § 251, a patentee who inadvertently and without deceptive intent made errors before the PTO resulting in an invalid or inoperative patent may surrender the patent, and after disclosing and correcting the errors and amending the application, may seek reissuance of the patent for the remaining unexpired term of the patent. *See Application of Clark*, 522 F.2d 623, 623, 627 (C.P.A.1975).

patent unenforceable. Nor has it shown that a manifest injustice will result from enforcement of that order. Indeed, the analysis here confirms that the inequitable conduct that occurred with respect to the '494 and '455 applications and the '132 patent is a separate and independent ground rendering the '636 patent unenforceable that supplements the separate and independent ground found in the April 15, 1998 Memorandum Opinion, namely, SEL's inequitable conduct with respect to the Canon '968 application.

An appropriate Order will issue.

ORDER

The matter came before the Court on plaintiff SEL's motion to reconsider its April 15, 1998 Order.

For the reasons stated in the accompanying Memorandum Opinion, plaintiff's motion is DENIED.

The Clerk is directed to place this matter among the ended causes.

APPENDIX I

United States District Court, E.D. Virginia, Alexandria Division.

No. 96-1460-A.

SEMICONDUCTOR ENERGY LABORATORY, CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO. LTD., SAMSUNG ELECTRONICS AMERICA, INC. AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

MEMORANDUM OPINION

This case is before the Court on Plaintiff's Motion for Summary Judgment on Defendants' Antitrust Counterclaims. Defendants Samsung Electronics Company, Samsung Electronics America, and Samsung Semiconductor, Inc. (collectively "Samsung") contend that Plaintiff Semiconductor Energy Laboratory Co., Ltd. ("SEL") is attempting to unlawfully monopolize particular markets by initiating litigation over patents SEL knows are invalid or unenforceable.

I.

Summary judgment is appropriate only if "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show

that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247 (1986); Fed. R. Civ. P. 56(c). "A district court must grant summary judgment if, after an adequate time for discovery, a party fails to make a showing sufficient to establish the existence of an essential element of that party's case." *Baber v. Hospital Corp. of Am.*, 977 F.2d 872, 874 (4th Cir. 1992). However, a court may only grant a summary judgment motion "if the non-movant failed to make a sufficient showing on an element on which he had the ultimate burden of proof." *Brock v. Entre Computer Ctrs., Inc.*, 933 F.2d 1253, 1259 (4th Cir. 1991).

"The mere existence of a scintilla of evidence in support of the [party's] position will be insufficient; there must be evidence on which the jury could reasonably find for th[at] [party]." *Anderson*, 477 U.S. at 252. In reviewing the evidence submitted by the parties, "the court must draw any inference in the light most favorable to the non-movant." *Brock*, 933 F.2d at 1259. The court must ultimately "determine whether the record taken as a whole could lead a reasonable trier of fact to find for the non-movant." *Id.*

II.

A patentee who brings an infringement suit may be subject to antitrust liability for the anti-competitive effects of the suit if the alleged infringer proves: 1) that the asserted patent was obtained through knowing and willful fraud under *Walker Process Equip., Inc. v. Food Mach. Chem. Corp.*, 382 U.S. 172, 177 (1965); or 2) that the infringement suit was "'a mere sham to cover what is actually nothing more than an attempt to interfere directly with the business relationships of a competitor.'" *Nobelpharma AB v. Implant Innovations Inc.*, 129 F.3d 1463, 1470 (Fed. Cir. 1997) (quoting *Eastern*

R.R. Presidents Conference v. Noerr Motor Freight, Inc., 365 U.S. 127, 144 (1961)).

In regards to the first basis of liability, *Walker Process* requires knowing, willful, affirmative misrepresentations to the Patent and Trademark Office ("PTO") in obtaining a patent. *Nobelpharma AB*, 129 F.3d at 1472-73. Other types of inequitable conduct, such as a knowing failure to disclose material references, will not trigger antitrust liability. *Id.* Consequently, inequitable conduct that will render a patent unenforceable is a broader, more inclusive concept than the fraud required to support an antitrust counterclaim. *Id.* at 1473. If this were not the case, most patent infringement actions would become antitrust cases, producing the undesired effect of converting "the shield of inequitable conduct into the sword of antitrust liability." *Id.*

Most of the allegedly fraudulent actions described by Samsung involve a failure to disclose information to the PTO. These actions do not support Samsung's *Walker Process* claim. However, Samsung alleges several instances where knowing, willful, affirmative misrepresentations were made in order to obtain the patents at issue.

Samsung identifies numerous genuine issues of material fact as to the affirmative misrepresentations. However, even if knowing and willful misrepresentations are proven, a *Walker Process* plaintiff must prove the intent and conduct elements of a Sherman Act violation, including a showing of market power in the relevant market and an ability to lessen or destroy competition. *Abbot Lab. v. Brennan*, 952 F.2d 1346, 1354 (Fed. Cir. 1991) (citing *Walker Process Equip., Inc.*, 382 U.S. at 173, 177-78). An attempted monopolization claim under the Sherman Act has three elements: 1) a specific intent to monopolize the

relevant market; 2) predatory or anticompetitive acts in furtherance of the intent; and 3) a dangerous probability of success. *M&M Med. Supplies and Serv., Inc. v. Pleasant Valley Hosp., Inc.*, 981 F.2d 160, 166 (4th Cir. 1992) (*en banc*).

First, relevant markets must be defined, because without defined markets, there is no way to measure an entity's ability to lessen or destroy competition. *Walker Process Equip., Inc.*, 382 U.S. at 177. SEL argues that the relevant market should be limited to the market for the manufacture and sale of products utilizing the technology in the single patent asserted by SEL.[1] Samsung argues that the relevant markets are the United States markets for 1) products utilizing amorphous silicon with low impurity levels, 2) technology for production of amorphous silicon with low impurity levels, and 3) innovation involving amorphous silicon with low impurity levels. Samsung's Amended Answer and Counterclaim, ¶ 93.

The second and third markets described by Samsung are "technology" and "innovation" markets. In April, 1995, the Department of Justice and the Federal Trade Commission jointly issued their *Antitrust Guidelines for the Licensing of Intellectual Property*, *reprinted* in ABA Section of Antitrust Law, *Antitrust Law Developments*, Appendix E (4th ed. 1997) ("Guidelines"). The Guidelines define a technology market as "the intellectual property that is licensed . . . and its close substitutes." Guidelines, 3.2.2. An innovation market is defined as "the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development." *Id.* at 3.2.3.

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[1] Originally, SEL claimed that Samsung infringed three of its patents, but it has since dropped its claims as to two of the patents.

Samsung provides evidence of anticompetitive conduct by SEL designed to exclude firms on a basis which arguably does not involve efficiency. Specifically, Samsung submits evidence that SEL licenses their patent to Japanese companies but refuses to deal with Korean companies. However, attempted monopolization requires "'methods, means and practices which would, if successful, accomplish monopolization, and which, though falling short, nevertheless approach so close as to create a dangerous probability of it.'" *M & M Med. Supplies and Serv., Inc.*, 981 F.2d at 165 (quoting *American Tobacco Co. v. United States*, 328 U.S. 781, 785 (1946).

The parties do not dispute that SEL licenses the patents at issue to more than one manufacturer[2], nor do the parties dispute that these companies participate in the same markets. The Court finds that by licensing to at least two manufacturers and to continue to seek license agreement, even if only from Japanese manufactures, no reasonable trier of fact could find that SEL employs methods, means, and practices which would accomplish monopolization or create a dangerous probability of it.[3] Attempting to enforce an unenforceable patent, without more, also does not support a finding of a method, means, or practice which creates a dangerous probability of monopolization.

Samsung essentially argues that by licensing only to Japanese manufacturers, SEL has a dangerous probability of

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[2] The undisputed evidence indicates that SEL licenses the patents at issue to at least two manufacturers and offered a license to at least one additional manufacturer.

[3] The theory that a group of firms can collectively monopolize has generally been rejected by the courts. Guidelines, p. 229 n. 2 (citations omitted).

monopolizing the technology market. However, SEL cannot be presumed to have market power in the antitrust sense in any market by mere ownership of a patent, and demonstrating market power is essential to Samsung's claim. *Abbot Lab. v. Brennan*, 952 F.2d at 1354. While Samsung provides evidence of anticompetitive conduct, Samsung offers no evidence of a licensing scheme that would give SEL monopoly power in the broad market for technology for production of amorphous silicon with low impurity levels.

Moreover, Samsung fails to present sufficient evidence of a specific intent to monopolize. Specific intent may be inferred from the antitrust defendant's anticompetitive practices, *M & M Med. Supplies and Serv., Inc.*, 981 F.2d at 166, however, SEL's granting licenses to at least two companies in the market defeats the inference. Samsung provides no support for its allegation that SEL has a specific intent to monopolize other than its evidence of anticompetitive conduct. For these reasons, as to the technology market, SEL fails to make a showing sufficient to establish the existence of the first and third elements of an attempted monopolization claim.

In regards to an innovation market, Samsung does not provide evidence that SEL had a specific intent to exclude others from research and development or substitutes for research and development involving amorphous silicon with low impurity levels. Samsung provides no support for the proposition that by attempting to enforce patents it knows are unenforceable, or by not licensing to Korean manufacturers, SEL intends to exclude Samsung from any research and development in a particular area. Moreover, no evidence indicates that SEL's enforcement efforts can create a dangerous probability that SEL will monopolize research and development in a particular area.

Furthermore, nothing indicates that the initiation of this lawsuit in October, 1996, has had any anticompetitive effect in a technology or innovation market, and there is no indication that it will have any anticompetitive effect. Samsung does not allege that it or any other company has lost its share of any market or that the lawsuit has affected prices in any market. The lack of effect further indicates that SEL does not have a dangerously probability of successfully monopolizing any market by filing meritless infringement claims.

SEL claims that the technology and innovation markets are irrelevant and argue that a definition of the relevant market under *Walker Process* is limited to the market for manufacture and sale of products. In addition to its technology and innovation arguments, Samsung asserts that by pursuing this lawsuit, SEL is illegally attempting to monopolize the product market.

The Supreme Court in *Walker Process* stated:

> To establish monopolization or attempt to monopolize a part of trade or commerce under § 2 of the Sherman Act, it would then be necessary to appraise the exclusionary power of the illegal patent in terms of the relevant market for the product involved.

Walker Process Equip., Inc., 382 U.S. at 177 (emphasis added). While clearly contemplating a product market, the Court did not address antitrust claims in regard to technology or innovation markets. Samsung does not cite and this Court has not found any cases where a party successfully asserted a *Walker Process* claim in regards to a technology or innovation market. However, the type of technology and innovation market that Samsung describes in this case can

likely be argued in every antitrust case where a patent is involved, as patents by their nature typically involve technological innovations that are marketable in some fashion.

Regardless, the Court must determine whether a reasonable trier of fact could find that SEL is unlawfully attempting to monopolize a United States product market even if SEL does not manufacture or sell any products.

Market share is relevant in determining a dangerous probability of successful monopolization, however, its relevance is tempered by evidence of the other two elements of an attempted monopolization claim. *M & M Med. Supplies and Serv., Inc.*, 981 F.2d at 168. Courts may cautiously apply a suggestion in a leading text that attempted monopolization claims should presumptively be rejected if the antitrust defendant's market share is less than 30%. *Id.* (citing 3 P. *Areeda & D. Turner*, Antitrust Law, ¶ 835c, at 350 (1978)). In addition, exclusionary conduct without the justification of efficiency enhances the likelihood of success. *Id.*

This Court finds that Samsung has not provided sufficient evidence that SEL has a specific intent to monopolize a product market. SEL also fails to provide sufficient evidence to overcome the presumption that there is no dangerous probability of monopolization by a company with no market share.[4]

The evidence indicates that SEL's initiation of an infringement lawsuit will detrimentally affect competition

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[4] SEL has no share of a product market, and no evidence contradicts SEL's contention that it does not intend to sell or distribute manufactured products.

only if SEL succeeds. While competition may be reduced if SEL successfully asserts infringement claims, such success can occur only if SEL demonstrates, or in case of settlement, if Samsung accepts that the patent or patents at issue are valid and enforceable. If SEL proves or Samsung agrees that the patents are valid and enforceable, then Samsung's *Walker Process* counterclaim must fail.

Moreover, the only injury claimed by Samsung as a result of this lawsuit is that it suffered expenses defending itself and in its efforts to design substitutes for the patented products. However, as courts frequently state, the Sherman Act is designed to protect competition, not competitors. *See, e.g., Abcor Corp. v. AM Int'l, Inc.*, 916 F.2d 924, 931 (4th Cir. 1990) (citing *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962)). While Samsung's challenge to SEL's infringement claims may be expensive, its challenge and efforts to design alternative products actually enhance competition.

In regards to the second basis for antitrust liability in this case, to prove that an infringement suit is "mere sham" because of inequitable conduct, the trier of fact must find that affirmative misrepresentations to the PTO amounting to inequitable conduct rendered the lawsuit objectively baseless. *Nobelpharma AB*, 129 F.3d 1473-74. After reviewing the arguments regarding Samsung's allegations that SEL made affirmative misrepresentations to the PTO, this Court finds that SEL provides reasonable (although not necessarily conclusive) defenses to those allegations. In light of the explanations SEL offers for its conduct before the PTO, a jury could not reasonably find that the lawsuit is objectively baseless. As a result, Samsung's claim that the infringement suit is "sham litigation" under *Walker Process* is without merit, and SEL is entitled to summary judgment on this issue.

III.

California's Cartwright Act, Cal. Bus. & Prof. Code § 16700 *et seq.*, lacks an equivalent to Section Two of the Sherman Act, therefore, claims of attempted monopolization are dependent on the Cartwright Act's prohibition of trusts and combinations. *Dimidowich v. Bell & Howell*, 803 F.2d 1473, 1478 (9th Cir. 1986). Because Samsung did not allege an unlawful trust or combination in its Amended Answer and Counterclaim, and because SEL fails to make a sufficient showing of the essential elements of a Sherman Act violation,[5] SEL is entitled to summary judgment on Samsung's California antitrust claim.

New Jersey's antitrust law provides that it is to be interpreted in harmony with federal antitrust law. N.J. Stat § 56:9-18. Therefore, because SEL is entitled to summary judgment on Samsung's federal antitrust claim, SEL is entitled to summary judgment on the New Jersey antitrust claim.

IV.

Samsung alleges that SEL offers licenses to Samsung's competitors in order to place Samsung at a disadvantage and is asserting patents it knows to be unenforceable in violation of California and New Jersey unfair competition laws.

California's Business & Professional Code Section 17200 defines unfair competition as any "unlawful, unfair, or fraudulent business practice and unfair, deceptive untrue, or

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[5] California's Cartwright Act prohibits substantially the same conduct as Section One of the Sherman Act. *Younger v. Jensen*, 605 P.2d 813, 818 (Cal. 1980).

misleading advertising." A claim for unfair competition in New Jersey is governed by New Jersey common law. As one New Jersey court has stated, the law is not well-defined and "is as flexible and elastic as the evolving standards of commercial morality apply." *New Jersey Optometric Ass'n v. Hillman-Kohan Eyeglasses Inc.*, 365 A.2d 956, 965 (N.J. Super. Ct. Ch. Div. 1976) (citing *Sachs, etc. Radio Co. v. Sachs Quality Stores Corp.*, 120 A.2d 477, 484-85 (N.J. Super. Ct. App. Div. 1956)).

SEL claims that it should not be subject to California and New Jersey law because it has no contacts in those states and Samsung suffered no injury in those states. However, conduct outside of a state is actionable within that state if it was calculated or reasonably foreseeable to cause injury to a person or entity within that state. *Calder v. Jones*, 465 U.S. 783, 789-90 (1984).

One of the unfair competition plaintiffs is based in California and another is in New Jersey. If Samsung can demonstrate that SEL offered more favorable licensing terms to Samsung's competitors in an attempt to injure Samsung, then such action was likely calculated to injure divisions of Samsung within the states in which they are based. Whether such a scheme existed and whether Samsung was injured by the alleged scheme are genuine issue of material fact.

For these reasons, SEL's Motion for Summary Judgment on Samsung's Counterclaim is GRANTED as to Counts One, Two, and Three and DENIED as to Counts Four and Five.

An appropriate Order shall issue.

March 20th, 1998 /s/
Alexandria, Virginia James C. Cacheris
UNITED STATES DISTRICT JUDGE

United States District Court, E.D. Virginia,
Alexandria Division.

No. 96-1460-A.

SEMICONDUCTOR ENERGY
LABORATORY, CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO. LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

ORDER

In accordance with the accompanying Memorandum Opinion, it is hereby Ordered that:

1) Plaintiff Semiconductor Energy Laboratory Co., Ltd.'s Motion for Summary Judgment on Defendants Samsung Electronics Company, Samsung Electronics America, and Samsung Semiconductor, Inc.'s Counterclaim is GRANTED as to Counts One, Two, and Three, and DENIED as to Counts Four and Five; and

2) the Clerk shall forward copies of this Order and accompanying Memorandum Opinion to all counsel of record.

March 20th, 1998 /s/
Alexandria, Virginia James C. Cacheris
UNITED STATES DISTRICT JUDGE

APPENDIX J

FEDERAL STATUTES INVOLVED

18 U.S.C. § 1001 (1994). Statements or entries generally

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined under this title or imprisoned not more than five years, or both.

* * * *

18 U.S.C. § 1341. Frauds and swindles

Whoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, or to sell, dispose of, loan, exchange, alter, give away, distribute, supply, or furnish or procure for unlawful use any counterfeit or spurious coin, obligation, security, or other article, or anything represented to be or intimated or held out to be such counterfeit or spurious article, for the purpose of executing such scheme or artifice or attempting so to do, places in any post office or authorized depository for mail matter, any matter or thing whatever to be sent or delivered by the Postal Service, or deposits or causes to be deposited any matter or thing whatever to be sent or delivered by any private or

commercial interstate carrier, or takes or receives therefrom, any such matter or thing, or knowingly causes to be delivered by mail or such carrier according to the direction thereon, or at the place at which it is directed to be delivered by the person to whom it is addressed, any such matter or thing, shall be fined under this title or imprisoned not more than five years, or both. If the violation affects a financial institution, such person shall be fined not more than $1,000,000 or imprisoned not more than 30 years, or both.

* * * *

18 U.S.C. § 1961. Definitions

As used in this chapter—

(1) "racketeering activity" means (A) any act or threat involving murder, kidnapping, gambling, arson, robbery, bribery, extortion, dealing in obscene matter, or dealing in a controlled substance or listed chemical (as defined in section 102 of the Controlled Substances Act), which is chargeable under State law and punishable by imprisonment for more than one year; (B) any act which is indictable under any of the following provisions of title 18, United States Code: Section 201 (relating to bribery), section 224 (relating to sports bribery), sections 471, 472, and 473 (relating to counterfeiting), section 659 (relating to theft from interstate shipment) if the act indictable under section 659 is felonious, section 664 (relating to embezzlement from pension and welfare funds), sections 891-894 (relating to extortionate credit transactions), section 1028 (relating to fraud and related activity in connection with identification documents), section 1029 (relating to fraud and related activity in connection with access devices), section 1084 (relating to the transmission of gambling information), section 1341 (relating to mail fraud), section 1343 (relating to wire fraud), section

1344 (relating to financial institution fraud), section 1425 (relating to the procurement of citizenship or nationalization unlawfully), section 1426 (relating to the reproduction of naturalization or citizenship papers), section 1427 (relating to the sale of naturalization or citizenship papers), sections 1461-1465 (relating to obscene matter), section 1503 (relating to obstruction of justice), section 1510 (relating to obstruction of criminal investigations), section 1511 (relating to the obstruction of State or local law enforcement), section 1512 (relating to tampering with a witness, victim, or an informant), section 1513 (relating to retaliating against a witness, victim, or an informant), section 1542 (relating to false statement in application and use of passport), section 1543 (relating to forgery or false use of passport), section 1544 (relating to misuse of passport), section 1546 (relating to fraud and misuse of visas, permits, and other documents), sections 1581-1588 (relating to peonage and slavery), section 1951 (relating to interference with commerce, robbery, or extortion), section 1952 (relating to racketeering), section 1953 (relating to interstate transportation of wagering paraphernalia), section 1954 (relating to unlawful welfare fund payments), section 1955 (relating to the prohibition of illegal gambling businesses), section 1956 (relating to the laundering of monetary instruments), section 1957 (relating to engaging in monetary transactions in property derived from specified unlawful activity), section 1958 (relating to use of interstate commerce facilities in the commission of murder-for-hire), sections 2251, 2251A, 2252, and 2260 (relating to sexual exploitation of children), sections 2312 and 2313 (relating to interstate transportation of stolen motor vehicles), sections 2314 and 2315 (relating to interstate transportation of stolen property), section 2318 (relating to trafficking in counterfeit labels for phonorecords, computer programs or computer program documentation or packaging and copies of motion pictures or other audiovisual works), section 2319 (relating to criminal infringement of a

copyright), section 2319A (relating to unauthorized fixation of and trafficking in sound recordings and music videos of live musical performances), section 2320 (relating to trafficking in goods or services bearing counterfeit marks), section 2321 (relating to trafficking in certain motor vehicles or motor vehicle parts), sections 2341-2346 (relating to trafficking in contraband cigarettes), sections 2421-24 (relating to white slave traffic), (C) any act which is indictable under title 29, United States Code, section 186 (dealing with restrictions on payments and loans to labor organizations) or section 501(c) (relating to embezzlement from union funds), (D) any offense involving fraud connected with a case under title 11 (except a case under section 157 of this title), fraud in the sale of securities, or the felonious manufacture, importation, receiving, concealment, buying, selling, or otherwise dealing in a controlled substance or listed chemical (as defined in section 102 of the Controlled Substances Act), punishable under any law of the United States, (E) any act which is indictable under the Currency and Foreign Transactions Reporting Act, or (F) any act which is indictable under the Immigration and Nationality Act, section 274 (relating to bringing in and harboring certain aliens), section 277 (relating to aiding or assisting certain aliens to enter the United States), or section 278 (relating to importation of alien for immoral purpose) if the act indictable under such section of such Act was committed for the purpose of financial gain;

(2) "State" means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, any territory or possession of the United States, any political subdivision, or any department, agency, or instrumentality thereof;

(3) "person" includes any individual or entity capable of holding a legal or beneficial interest in property;

(4) "enterprise" includes any individual, partnership, corporation, association, or other legal entity, and any union or group of individuals associated in fact although not a legal entity;

(5) "pattern of racketeering activity" requires at least two acts of racketeering activity, one of which occurred after the effective date of this chapter and the last of which occurred within ten years (excluding any period of imprisonment) after the commission of a prior act of racketeering activity;

(6) "unlawful debt" means a debt (A) incurred or contracted in gambling activity which was in violation of the law of the United States, a State or political subdivision thereof, or which is unenforceable under State or Federal law in whole or in part as to principal or interest because of the laws relating to usury, and (B) which was incurred in connection with the business of gambling in violation of the law of the United States, a State or political subdivision thereof, or the business of lending money or a thing of value at a rate usurious under State or Federal law, where the usurious rate is at least twice the enforceable rate;

(7) "racketeering investigator" means any attorney or investigator so designated by the Attorney General and charged with the duty of enforcing or carrying into effect this chapter;

(8) "racketeering investigation" means any inquiry conducted by any racketeering investigator for the purpose of ascertaining whether any person has been involved in any violation of this chapter or of any final order, judgment, or decree of any court of the United States, duly entered in any case or proceeding arising under this chapter;

(9) "documentary material" includes any book, paper, document, record, recording, or other material; and

(10) "Attorney General" includes the Attorney General of the United States, the Deputy Attorney General of the United States, the Associate Attorney General of the United States, any Assistant Attorney General of the United States, or any employee of the Department of Justice or any employee of any department or agency of the United States so designated by the Attorney General to carry out the powers conferred on the Attorney General by this chapter. Any department or agency so designated may use in investigations authorized by this chapter either the investigative provisions of this chapter or the investigative power of such department or agency otherwise conferred by law.

* * * *

18 U.S.C. § 1962. Prohibited activities

(a) It shall be unlawful for any person who has received any income derived, directly or indirectly, from a pattern of racketeering activity or through collection of an unlawful debt in which such person has participated as a principal within the meaning of section 2, title 18, United States Code, to use or invest, directly or indirectly, any part of such income, or the proceeds of such income, in acquisition of any interest in, or the establishment or operation of, any enterprise which is engaged in, or the activities of which affect, interstate or foreign commerce. A purchase of securities on the open market for purposes of investment, and without the intention of controlling or participating in the control of the issuer, or of assisting another to do so, shall not be unlawful under this subsection if the securities of the issuer held by the purchaser, the

members of his immediate family, and his or their accomplices in any pattern or racketeering activity or the collection of an unlawful debt after such purchase do not amount in the aggregate to one percent of the outstanding securities of any one class, and do not confer, either in law or in fact, the power to elect one or more directors of the issuer.

(b) It shall be unlawful for any person through a pattern of racketeering activity or through collection of an unlawful debt to acquire or maintain, directly or indirectly, any interest in or control of any enterprise which is engaged in, or the activities of which affect, interstate or foreign commerce.

(c) It shall be unlawful for any person employed by or associated with any enterprise engaged in, or the activities of which affect, interstate or foreign commerce, to conduct or participate, directly or indirectly, in the conduct of such enterprise's affairs through a pattern of racketeering activity or collection of unlawful debt.

(d) It shall be unlawful for any person to conspire to violate any of the provisions of subsection (a), (b), or (c) of this section.

* * * *

18 U.S.C. § 1964. Civil remedies

(a) The district courts of the United States shall have jurisdiction to prevent and restrain violations of section 1962 of this chapter by issuing appropriate orders, including, but not limited to: ordering any person to divest himself of any interest, direct or indirect, in any enterprise; imposing reasonable restrictions on the future activities or investments of any person, including, but not limited to, prohibiting any

person from engaging in the same type of endeavor as the enterprise engaged in, the activities of which affect interstate or foreign commerce; or ordering dissolution or reorganization of any enterprise, making due provision for the rights of innocent persons.

(b) The Attorney General may institute proceedings under this section. Pending final determination thereof, the court may at any time enter such restraining orders or prohibitions, or take such other actions, including the acceptance of satisfactory performance bonds, as it shall deem proper.

(c) Any person injured in his business or property by reason of a violation of section 1962 of this chapter may sue therefor in any appropriate United States district court and shall recover threefold the damages he sustains and the cost of the suit, including a reasonable attorney's fee, except that no person may rely upon any conduct that would have been actionable as fraud in the purchase or sale of securities to establish a violation of section 1962. The exception contained in the preceding sentence does not apply to an action against any person that is criminally convicted in connection with the fraud, in which case the statute of limitations shall start to run on the date on which the conviction becomes final.

(d) A final judgment or decree rendered in favor of the United States in any criminal proceeding brought by the United States under this chapter shall estop the defendant from denying the essential allegations of the criminal offense in any subsequent civil proceeding brought by the United States.

APPENDIX K

NEW JERSEY STATUTES INVOLVED

N.J.S.A. § 2C:21-3. Frauds relating to public records and recordable instruments

a. Fraudulent destruction, removal or concealment of recordable instruments. A person commits a crime of the third degree if, with purpose to deceive or injure anyone, he destroys, removes or conceals any will, deed, mortgage, security instrument or other writing for which the law provides public recording.

b. Offering a false instrument for filing. A person is guilty of a disorderly persons offense when, knowing that a written instrument contains a false statement or false information, he offers or presents it to a public office or public servant with knowledge or belief that it will be filed with, registered or recorded in or otherwise become a part of the records of such public office or public servant.

* * * *

N.J.S.A. § 2C:41-1. Definitions.

For purposes of this section and N.J.S.2C:41-2 through N.J.S.2C:41-6:

a. "Racketeering activity" means (1) any of the following crimes which are crimes under the laws of New Jersey or are equivalent crimes under the laws of any other jurisdiction:

(a) murder

(b) kidnapping

(c) gambling

(d) promoting prostitution

(e) obscenity

(f) robbery

(g) bribery

(h) extortion

(i) criminal usury

(j) violations of Title 33 of the Revised Statutes

(k) violations of Title 54A of the New Jersey Statutes and Title 54 of the Revised Statutes

(l) arson

(m) burglary

(n) theft and all crimes defined in chapter 20 of Title 2C of the New Jersey Statutes

(o) forgery and fraudulent practices and all crimes defined in chapter 21 of Title 2C of the New Jersey Statutes

(p) fraud in the offering, sale or purchase of securities

(q) alteration of motor vehicle identification numbers

(r) unlawful manufacture, purchase, use or transfer of firearms

(s) unlawful possession or use of destructive devices or explosives

(t) violation of sections 112 through 116 inclusive of the "Casino Control Act," P.L.1977, c. 110 (C.5:12-112 through 5:12-116)

(u) violation of N.J.S.2C:35-4, N.J.S. 2C:35-5 or N.J.S. 2C:35-6 and all crimes involving illegal distribution of a controlled dangerous substance or controlled substance analog, except possession of less than one ounce of marijuana

(v) violation of subsection b. of N.J.S. 2C:24-4 except for subparagraph (b) of paragraph (5) of subsection b.

(2) any conduct defined as "racketeering activity" under Title 18, U.S.C. §1961(1)(A), (B) and (D).

b. "Person" includes any individual or entity or enterprise as defined herein holding or capable of holding a legal or beneficial interest in property.

c. "Enterprise" includes any individual, sole proprietorship, partnership, corporation, business or charitable trust, association, or other legal entity, any union or group of individuals associated in fact although not a legal

entity, and it includes illicit as well as licit enterprises and governmental as well as other entities.

d. "Pattern of racketeering activity" requires

(1) Engaging in at least two incidents of racketeering conduct one of which shall have occurred after the effective date of this act and the last of which shall have occurred within 10 years (excluding any period of imprisonment) after a prior incident of racketeering activity; and

(2) A showing that the incidents of racketeering activity embrace criminal conduct that has either the same or similar purposes, results, participants or victims or methods of commission or are otherwise interrelated by distinguishing characteristics and are not isolated incidents.

e. "Unlawful debt" means a debt

(1) Which was incurred or contracted in gambling activity which was in violation of the law of the United States, a state or political subdivision thereof; or

(2) Which is unenforceable under state or federal law in whole or in part as to principal or interest because of the laws relating to usury.

f. "Documentary material" includes any book, paper, document, writing, drawing, graph, chart, photograph, phonorecord, magnetic or recording or video tape, computer printout, other data compilation from which information can be obtained or from which information can be translated into useable form or other tangible item.

g. "Attorney General" includes the Attorney General of New Jersey, his assistants and deputies. The term shall also include a county prosecutor or his designated assistant prosecutor if a county prosecutor is expressly authorized in writing by the Attorney General to carry out the powers conferred on the Attorney General by this chapter.

h. "Trade or commerce" shall include all economic activity involving or relating to any commodity or service.

* * * *

N.J.S.A. § 2C:41-1.1. Declaration of policy and legislative findings

The Legislature hereby finds and declares to be the public policy of this State, the following:

a. By enactment of the "Criminal Justice Act of 1970," P.L.1970, c. 74 (C. 52:17B-97 et seq.), the Legislature recognized that the existence of organized crime and organized crime type activities presents a serious threat to the political, social and economic institutions of this State.

b. Despite the impressive gains of our law enforcement agencies, organized crime and similar activities in this State are still a highly sophisticated, diversified and widespread activity that annually drains millions of dollars from this State's economy by unlawful conduct and the illegal use of force, fraud and corruption. In recent years,

that organized crime and organized criminal type activity has spread to the operation of otherwise legitimate businesses.

c. In order to safeguard the public interest, effective criminal and civil sanctions are needed to prevent, disrupt and eliminate the infiltration of organized crime type activities which are substantial in nature into the legitimate trade or commerce of this State. It is, therefore, in the public interest to provide that activity which is inimical to the general health, welfare and prosperity of the State and its inhabitants be made subject to strict civil and criminal sanctions.

* * * *

N.J.S.A. § 2C:41-2. Prohibited activities

a. It shall be unlawful for any person who has received any income derived, directly or indirectly, from a pattern of racketeering activity or through collection of an unlawful debt in which he has participated as a principal within the meaning of N.J.S. 2C:2-6 to use or invest, directly or indirectly, any part of the income, or the proceeds of the income, in acquisition of any interest in, or the establishment or operation of any enterprise which is engaged in or the activities of which affect trade or commerce. A purchase of securities on the open market for purposes of investment, and without the intention of controlling or participating in the control of the issuer or of assisting another to do so, shall not be unlawful under this section, provided that the sum total of the securities of the issuer held by the purchaser, the members of his family, and his or their accomplices in any pattern of racketeering activity or in the collection of an unlawful debt does not amount in the aggregate to 1% of the outstanding securities of any one class, or does not, either in law or in fact, empower the holders thereof to elect one or

more directors of the issuer, provided further, that if, in any proceeding involving an alleged investment in violation of this section, it is established that over half of the defendant's aggregate income for a period of 2 or more years immediately preceding the investment was derived from a pattern of racketeering activity, a rebuttable presumption shall arise that the investment included income derived from a pattern of racketeering activity.

b. It shall be unlawful for any person through a pattern of racketeering activity or through collection of an unlawful debt to acquire or maintain, directly or indirectly, any interest in or control of any enterprise which is engaged in or activities of which affect trade or commerce.

c. It shall be unlawful for any person employed by or associated with any enterprise engaged in or activities of which affect trade or commerce to conduct or participate, directly or indirectly, in the conduct of the enterprise's affairs through a pattern of racketeering activity or collection of unlawful debt.

d. It shall be unlawful for any person to conspire as defined by N.J.S. 2C:5-2, to violate any of the provisions of this section.

* * * *

N.J.S.A. § 2C:41-4. Civil remedies

a. The Superior Court, making due provision for the rights of innocent persons, shall have jurisdiction to prevent and restrain the acts or conduct which constitute violations of

N.J.S. 2C:41-2, by issuing appropriate orders, including, but not limited to:

(1) Ordering any person to divest himself of any interest, direct or indirect, in any enterprise;

(2) Imposing reasonable restrictions on the future activities or investments of any person, including but not limited to, prohibiting any person from engaging in the same type of endeavor as the enterprise found to be in violation of N.J.S. 2C:41-2;

(3) Ordering the dissolution or reorganization of any enterprise;

(4) Ordering the denial, suspension or revocation of the charter of any corporation organized under the laws of this State and to deny, suspend or revoke the license of any foreign corporation authorized to do business in the State of New Jersey;

(5) Ordering the denial, suspension or revocation of the license or permit granted to any enterprise by any department or agency of the State of New Jersey;

(6) Entering a cease and desist order which specifies the acts or conduct which is to be discontinued, altered or implemented by any person;

(7) Ordering the restitution of any moneys or property unlawfully obtained or retained by any person found to be in violation of N.J.S. 2C:41-2;

(8) Assessing civil monetary penalties against any person who has violated N.J.S. 2C:41-2 to deter future violations, provided that the court shall, upon making a finding on the record as to the gain any such person has acquired or maintained through the violation, assess such penalties in an amount not to exceed three times the amount of the gain; and

(9) Ordering any person to forfeit to the State any interest he has acquired or maintained in violation of this chapter and any interest in, security of, claim against, or property or contractual right of any kind affording a source of influence over any enterprises he has established, operated, controlled, conducted, or participated in the conduct of, in violation of this chapter. Forfeiture under this subsection shall be in accordance with chapter 64 of Title 2C of the New Jersey Statutes. The interest which shall be subject to forfeiture shall be as defined by this section and as defined by N.J.S. 2C:64-1a.;

(10) Imposing any or all of the foregoing sanctions in combination with each other.

b. The Attorney General may institute proceedings in Superior Court for violations of N.J.S. 2C:41-2. In any

action brought under this section, the court shall proceed as soon as practicable to the hearing and determination thereof. Pending final determination thereof, the court may at any time enter restraining orders or prohibitions, or take other actions, including the acceptance of satisfactory performance bonds, as it shall deem proper.

c. Any person damaged in his business or property by reason of a violation of N.J.S. 2C:41-2 may sue therefor in any appropriate court and shall recover threefold any damages he sustains and the cost of the suit, including a reasonable attorney's fee, costs of investigation and litigation.

d. A final judgment rendered in favor of the State in any criminal proceeding brought under this chapter shall estop the defendant from denying the essential allegations of the criminal offense in any subsequent civil proceeding.

* * * *

N.J.S.A. § 2C:41-6. Liberal construction

The provisions of subsections a., c., d., e., and h. of 2C:41-1; 2C:41-2; subsections b., c., d., e., and f. of 2C:41-3; and 2C:41-4 shall be liberally construed to effectuate the remedial purposes of this chapter.

* * * *

N.J.S.A. § 2C:41-6.1. Remedies cumulative

The remedies provided in this act shall be cumulative with each other and other remedies at law.

APPENDIX L

United States District Court, E.D. Virginia, Alexandria Division.

No. 96-1460-A.

SEMICONDUCTOR ENERGY LABORATORY, CO., LTD.,
Plaintiff,

v.

SAMSUNG ELECTRONICS CO. LTD., SAMSUNG ELECTRONICS AMERICA, INC. AND SAMSUNG SEMICONDUCTOR, INC.,
Defendants.

SAMSUNG'S SECOND AMENDED ANSWER AND COUNTERCLAIMS TO SEL'S FIRST AMENDED COMPLAINT

JURY TRIAL DEMANDED

Defendants SAMSUNG ELECTRONICS CO., LTD. ("SEC"), SAMSUNG ELECTRONICS AMERICA, INC. ("SEA") and SAMSUNG SEMICONDUCTOR, INC. ("SSI) (hereinafter collectively referred to as "Samsung" or "defendants") further amend their answer to the First Amended Complain for Damages and Injunctive Relief ("First Amended Complaint") filed by plaintiff Semiconductor Energy Laboratory ("SEL").

FIRST DEFENSE

1. Answering paragraph 1, Samsung admits that the Patents-in-Suit are United States Patent No. 5,349,204, issued September 20, 1994, No. 5,521,400, issued May 28, 1996 and No. 5,543,636, issued August 6, 1996; that copies of the Patents-in-Suit are attached as Exhibits A, B & C to the Amended Complaint, respectively; and, that SEL is listed on the Patents-in-Suit as the assignee. Except as so admitted, Samsung denies each and every allegation in said paragraph 1.

2. Samsung admits the allegations of paragraphs 2, 3, 4 and 5.

3. Answering paragraph 6, Samsung admits that plaintiff bases its claim on the patent laws of the United States. Except as so admitted, Samsung denies each and every allegation in paragraph 6, and specifically denies that plaintiff has any valid claim.

4. Answering paragraphs 7 and 8, Samsung admits that venue is proper.

5. Answering paragraph 9, Samsung denies each and every allegation in said paragraph. SEA specifically denies that it directly sells computers with active matrix displays in the district. SSI specifically denies that it directly sells active matrix displays in the district. Samsung specifically denies that SEL has been damaged as alleged or at all.

6. Answering paragraph 10, Samsung denies each and every allegation in said paragraph, and specifically denies that SEL is the sole owner of all right, title and interest in and to each of the Patents-in-Suit.

7. Samsung denies the allegations of paragraphs 11 and 12, and specifically denies that SEL has been damaged as alleged, or at all.

8. Samsung denies the allegations of paragraphs 13 and 14.

SECOND DEFENSE

9. SEL, through its principals, representatives, agents and/or shareholders, made material misrepresentations to Samsung regarding the Patents-in-Suit, including misrepresentations on the scope of the Patents-in-Suit and SEL's assertion of the Patents-in-Suit against Samsung now or in the future.

THIRD DEFENSE

10. Incorporating by reference the allegations of paragraph 9 above, SEL, through its principals, representatives, agents and/or shareholders, has, expressly or implicitly, licensed Samsung to practice the Patents-in-Suit.

FOURTH DEFENSE

11. Incorporating by reference the allegations of paragraphs 9 and 10 above, the conduct of SEL, through its principals, representatives, agents and/or shareholders, has resulted in a waiver of any right of recovery against Samsung under the Patents-in-Suit.

FIFTH DEFENSE

12. Incorporating by reference the allegations of paragraph 9 and 10 above, SEL is estopped and/or barred from bringing the asserted claim against Samsung.

SIXTH DEFENSE

13. The Amended Complaint fails to state a claim against Samsung upon which any relief can be granted.

SEVENTH DEFENSE

14. On information and belief, the inventor named in the Patents-in-Suit did not make any invention or discovery, either novel, original or otherwise, within the meaning of U.S.C. Title 35, including 35 U.S.C. §E101.

EIGHTH DEFENSE

15. On information and belief, the Patents-in-Suit, and the claims therein, are void, invalid and unenforceable for failing to comply with 35 U.S.C. § 112 in that each specification does not enable one skilled in the art to practice the invention allegedly made nor does each specification set forth the best mode contemplated by the named inventor for carrying out the alleged inventions.

NINTH DEFENSE

16. On information and belief, the Patents-in-Suit are void and invalid under 35 U.S.C. § 102.

TENTH DEFENSE

17. Upon information and belief, the Patents-in-Suit are void, invalid and unenforceable for failing to comply with one or more of the provisions of 35 U.S.C. §§ 102 and 119, including that the alleged inventions in the Patents-in-Suit were described in printed publications more than one year prior to the date of the applications for the Patents-in-Suit in the United States.

ELEVENTH DEFENSE

18. Upon information and belief, the Patents-in-Suit, and the claims therein, are void, invalid and unenforceable for failing to comply with one or more of the provisions of 35 U.S.C. §§ 102 and 119, including that the alleged inventions were in public use or were on sale in this country more than one year prior to the date of the filing of the patent applications in the United States.

TWELFTH DEFENSE

19. Upon information and belief, the Patents-in-Suit are void, invalid and unenforceable under 35 U.S.C. § 103 as the differences between the patented subject matter and the prior art are such that the subject matter as a whole was obvious at the time the invention was made to a person having ordinary skill in the art.

THIRTEENTH DEFENSE

20. By reason of the proceedings in the PTO during the prosecution of the applications which resulted in issuance of the Patents-in-Suit, as shown by the prosecution histories thereof, SEL cannot claim for the Patents-in-Suit a construction that would cause said patents to cover or include any of Samsung's articles, equipment or products.

FOURTEENTH DEFENSE

21. SEL is not entitled to recovery of damages herein by reason of failure to comply with 35 U.S.C. § 287(a).

FIFTEENTH DEFENSE

22. Incorporating by reference the allegations of paragraph 9 above and paragraphs 26 through 86 below, SEL comes to this Court seeking relief with unclean hands.

SIXTEENTH DEFENSE

23. Plaintiff is barred from recovery herein on the basis of the laches.

SEVENTEENTH DEFENSE

Inequitable Conduct

24. All claims in the Patents-in-Suit are unenforceable by virtue of the intentional and material failure of the patent applicant to act with the degree of candor and good faith required of persons who prepare or prosecute a patent application before the United States Patent and Trademark ("PTO"), including the deliberate failure to disclose material prior art known to SEL and the inventor.

25. A patent is the only constitutionally authorized monopoly and is, therefore, by its nature affected with a public interest. This public interest is best served when the PTO is "aware of and evaluates the teachings of all information material to patentability." 37 C.F.R. § 1.56(a).

26. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith to disclose to the PTO all information known to that individual to be material to patentability. 37 C.F.R. § 1.56(a).

27. Information is material to patentability when:

> (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or (2) It refutes, or is inconsistent with, a position the applicant takes in: (i) Opposing an argument of unpatentability relied on by the Office, or (ii) Asserting an argument of patentability. 37 C.F.R. § 1.56(b).

28. The Patents-in-Suit list Shumpei Yamazaki ("Yamazaki") as the sole inventor. Yamazaki owns 65% of SEL and is its President.

29. SEL and its agents, and in particular Gerald J. Ferguson, Jr. ("Ferguson"), SEL's attorney responsible for prosecuting the Patents-in-Suit, combined and conspired to fraudulently obtain the Patents-in-Suit. SEL and Ferguson have followed a consistent, conscious pattern of violating 37 C.F.R. § 1.56 during prosecution of the Patents-in-Suit before the PTO. The acts of SEL and Ferguson have included making material misrepresentations to the PTO and withholding from the PTO information they had a duty to disclose. SEL and Ferguson have at all times not complied with their duty of candor and good faith in order to obtain issuance of patents that would have been rejected if the true facts were known to the PTO. A detailed account of their acts is set forth below.

History And Summary Of The Patents-In-Suit

A. U.S. Patent No. 5,349,204

30. U.S. Patent No. 5,349,204 (the '204 patent) is one of a series of patents that have issued from the following chain of patent applications and patents:

- U.S. Application No. 06/525,459, filed August 22, 1983, now U.S. Patent No. 4,591,892, (added to the chain of priority by a certificate of correction issued after this suit was filed),

- U.S. Application No. 06/564,213, filed December 22, 1983, now U.S. Patent No. 4,581,476,

- U.S. Application No. 06/785,586, filed October 9, 1985, abandoned

- U.S. Application No. 07/443,015, filed November 29, 1989, now U.S. Patent No. 5,077,223,

- U.S. Application No. 07/748,421, filed August 22, 1991, abandoned,

- U.S. Application No. 07/804,736, filed December 3, 1991, abandoned, and

- U.S. Application No. 08/162,374, filed December 7, 1993, now U.S. Patent No. 5,349,204.

(Collectively, "the '204 genealogy"). The '204 genealogy without the application leading to U.S. Patent No. 4,591,892 is referred to herein as "the original '204 genealogy."

31. Upon information and belief, in addition to the above applications, SEL has filed a series of continuing applications that are not yet public in an effort to fraudulently obtain additional U.S. patents.

32. The original '204 genealogy claimed a foreign priority from only one foreign application, Japanese Patent Application 57-228158, filed December 23, 1982.

33. Beginning in March 1995, SEL commenced filed a series of reissue applications for patents and amendments to abandoned cases to change the U.S. and foreign priority for the original '204 genealogy. The series of changes culminated in November 1996 (after the current action had been filed) with the filing of a Request for a Certificate of Correction for the '204 patent. By this series of actions, SEL has added U.S. Application No. 06/525,459 filed August 22, 1983, now U.S. Patent No. 4,591,892 ("the '892 patent") to the original '204 genealogy. The '892 patent claims the benefit of two foreign application priority dates – Japanese application 57-146561, filed August 24, 1982 and Japanese application 57-182546, filed October 18, 1982.

34. The disclosure made in the '204 patent is directed toward a "Photoelectric Conversion Device," more commonly known as a solar cell. The solar cell disclosed is formed using a non-single-crystalline semiconductor material and has an "intrinsic type" layer that allegedly reduces the solar cell performance degradation referred to as the Staebler-Wronski effect.

35. The asserted claims in the '204 patent are directed toward a generic semiconductor device, containing a non-single-crystalline semiconductor with an "intrinsic" layer containing the following elements at *or below* the concentrations shown:

- Oxygen at $5x10^{19}$ atoms/cm^3;
- Carbon at $4x10^{18}$ atoms/cm^3; and

- Phosphorus at $5x10^{15}$ or $5x10^{18}$ atoms/cm^3.

B. U.S. Patent No. 5,521,400

36. U.S. Patent No. 5,521,400 (the '400 patent) is one of a series of patents that have issued from the following chain of patent applications and patents:

- U.S. Application No. 06/800,694, filed November 22, 1985, now U.S. Patent No. 4,690,717,
- U.S. Application No. 06/800,441, filed May 7, 1986, now U.S. Patent No. 5,043,772,
- U.s. Application No. 07/694,406, filed May 1, 1991, now U.S. Patent No. 5,391,893, and
- U.S. Application No. 08/350,115, filed November 29, 1994, now U.S. Patent No. 5,521,400.

(Collectively "the '400 genealogy").

37. The '400 genealogy claims foreign priority to two Japanese patent applications:

- Japanese Application No. 60-96391, filed May 7, 1985, Laid-Open No. 61-255073, published November 12, 1986, no patent issued, and
- Japanese Application No. 60-96392, filed May 7, 1985, Laid-Open No. 61-255016,

published November 12, 1986, now Japanese Patent No. 2,590,305.

38. The disclosure made in '400 patent is directed toward a "Semiconductor Photoelectrically Sensitive Device with Low Sodium Concentration," that is, a solar cell, formed with low sodium. The '400 patent discloses a solar cell formed using a non-single-crystalline semiconductor, that is alleged to have higher photo-sensitivity and to be less variable with changes in light or temperature as a result of lowering sodium or sodium and oxygen. The disclosure describes a process that allegedly removes sodium from both the semiconductor deposition chamber and the semiconductor substrate using heat and chloride gas. The disclosure also describes a process that allegedly removes oxygen by using a molecular sieve or zeolites to filter the silane gas used to deposit amorphous silicon which is a non-single crystal semiconductor.

39. The asserted claims in the '400 patent are directed toward a generic semiconductor device or semiconductor material with a non-single-crystalline "intrinsic" layer containing sodium at or less than $5x10^{18}$ atoms/cm^3. Several dependent claims require both low sodium and oxygen at or less than $5x10^{18}$ atoms/cm^3.

C. U.S. Patent No. 5,543,636

40. Patent No. 5,543,636 (the '636 patent) is one of a series of patents that have issued from the following chain of patent applications and patents:

- U.S. Application No. 06/735,697, filed May 20, 1985, abandoned,

- U.S. Application No. 07/153,477, filed February 3, 1988, now U.S. Patent No. 4,959,700,
- U.S. Application No. 07/520,756, filed May 9, 1990, abandoned,
- U.S. Application No. 07/707,178, filed May 24, 1991, now U.S. Patent No. 5,142,344,
- U.S. Application No. 07/885,643, filed May 19, 1992, abandoned,
- U.S. Application No. 07/987,179, filed December 8, 1992, now U.S. Patent No. 5,315,132,
- U.S. Application No. 08/214,494, filed March 18, 1994, abandoned,
- U.S. Application No. 08/425,455, filed April 20, 1995, now pending, and
- U.S. Application No. 08/473,953, filed June 7, 1995, now U.S. Patent No. 5,543,636.

(Collectively, "the '636 genealogy").

41. The '636 patent claims foreign priority from three Japanese patent applications:

- Japanese Application No. 59-100250, filed May 18, 1984, Laid-Open No. 60-245172, published December 4, 1985, no patent issued,

- Japanese Application No. 59-100251, filed May 18, 1984, Laid-Open No. 60-245173, published December 4, 1985, no patent issued, and

- Japanese Application No. 59-100252, filed May 18, 1984, Laid-Open No. 60-245174, published December 4, 1985, no patent issued.

42. The disclosure made in the '636 patent is directed toward an "Insulated Gate Field Effect Transistor." The stated object of the patent is to provide an insulated gate field effect transistor (IGFET) comprised of non-single-crystalline semiconductor with an "excellent OFF characteristic" as compared to conventional FETs. In addition, the switching speed of the claimed IGFET is alleged to be faster than that of a conventional FET. The disclosure allegedly describes the construction of such a device.

43. The asserted claims are for an insulated-gate field effect transistor or a thin-film transistor containing a non-single-crystalline "intrinsic" layer. The claims require that the intrinsic layer contain a "channel region" of which at least a portion contains a concentration of oxygen, carbon, or nitrogen "not higher than" or "not exceeding" $5x10^{18}$ atoms/cm^3.

Inequitable Conduct During
Prosecution Of The Ô204 Genealogy

44. An applicant for a certificate of correction is obligated to disclose to the PTO that an error of minor character was made in good faith by the applicant. 37 C.F.R. § 1.323.

45. An applicant for reissue is under the same obligations as when applying for the original patent. 37 C.F.R. § 1.171. The reissue applicant's oath must include the following:

> (1) When the applicant verily believes the original patent to be wholly or partly inoperative or invalid, stating such belief and the reasons why.
>
> (2) When it is claimed that such patent is so inoperative or invalid 'by reason of a defective specification or drawing,' particularly specifying such defects.
>
> (3) When it is claimed that such patent is inoperative or invalid 'by reason of the patentee claiming more or less than he had the right to claim in the patent,' distinctly specifying the excess or insufficiency in the claims.
>
> (4) Particularly specifying the errors relied upon, and how they arose or occurred.
>
> (5) Stating that said errors arose 'without any deceptive intention' on the part of the applicant.
>
> (6) Acknowledging the duty to disclose to the Office all information known to the applicants to be material to patentability as defined in § 1.56.

37 C.F.R. § 1.175.

46. On March 15, 1995, Yamazaki signed, under penalty of perjury, two declarations that were submitted in support of SEL's applications for reissue of U.S. Patent No. 4,581,476 (the '476 declaration) and U.S. Patent No. 5,077,223 (the '223 declaration). In the '476 declaration, Yamazaki stated that:

> I did not appreciate either at the time the application for the original patent was filed or during the prosecution thereof, that the ['476 patent application] should have claimed the benefit of the filing date of the [US Patent No. 4,591,892] application under 35 USC § 120 and that the ['476 patent application] should have been amended to refer to the '459 application.

47. The language in the '476 declaration and the '223 declaration relevant to inequitable conduct is virtually identical.

48. On November 8, 1996, SEL filed a Request for Certificate of Correction of the '204 patent. Yamazaki's '476 declaration was attached to SEL's application for a certificate of correction.

49. Yamazaki's '476 declaration and '223 declaration were misleading and failed to disclose the following material facts to the PTO:

a. The application leading to the '892 patent and the first application in the original '204 chain of priority were filed four (4) months apart by the same inventor and the same attorney. Thus, SEL and Ferguson were clearly aware of the common subject matter at the time of filing of the first application in the original '204 genealogy.

b. Those two applications were concurrently prosecuted by the same inventor and attorney over the next two and one-half years. During this period, filings with the PTO in both cases required that cased be looked at and analyzed during the course of prosecution. Each such event would have called the common subject matter to the attention of SEL and Ferguson. Thus, a conscious and intentional decision was made by Yamazaki and Ferguson to keep the two cases separate.

50. On September 6, 1995, the PTO rejected all claims of the pending '223 reissue application on the grounds that Yamazaki's '223 declaration was defective:

> The reissue oath or declaration filed with this application is defective because it fails to particularly specify the errors and/or how the errors relied upon arose or occurred as required under 37 C.F.R. 1.175(a)(5)... The only statement in Applicant's declaration relative to "how the error arose or occurred" appears at page 3, in lines 5-9, of the declaration:
>
> > The foregoing errors arose because I did not appreciate, either at the time the '015 application for the original '223 patent was filed nor during the prosecution thereof, that the '015 application should have claimed the benefit of the filing date of the '459 application under 35 U.S.C. § 120 and that the '015 application should have been amended to refer to the '459 application.

This statement merely represents a conclusion and lacks a description of the facts leading up to the conclusion that the '015 application should have claimed the benefit of the filing

date of the '459 application under 35 U.S.C. § 120 and that the '015 application should have been amended to refer to the '459 application.

....

In the subject reissue application, Applicant's reissue declaration fails to present any factual information concerning how Applicant failed to claim priority to the earlier-filed '459 application at the time of filing the '015 application. For example, it is noted that both the '459 application and the '015 application were filed and prosecuted by the same patent attorney, Mr. Gerald J. Ferguson, Jr. Applicant has stated in his reissue declaration that he failed to appreciate that the '015 application could have claimed benefit from the filing date of the earlier-filed '459 application, however did Applicant's patent attorney advise him that the '015 application could have claimed priority to the earlier-filed '459 application? If not, why did he not inform his client of the possibility of claiming priority to the '459 application?

51. After this rejection, SEL did not submit another declaration of Yamazaki correcting the deficiencies in his original declaration. As noted in the rejection by the PTO, Yamazaki's '223 declaration was not forthcoming about what he knew, and SEL and Ferguson did nothing to correct this.

52. Instead, Ferguson submitted a declaration in which he stated:

> Although there is common subject matter between the original '223 patent and the earlier filed, above-mentioned '459 application, and although the '015 application was entitled to claim the benefit of the filing date of the '459 application under 35 U.S.C.

> 120 as to the common subject matter, I did not advise the applicant of this fact during the pendency of the '015 since I did not actually recognize the existence of common subject matter during the pendency of the '015 application despite the fact that I also prosecuted the '459 application, keeping in mind that I was responsible for the prosecution of an extensive number of patent applications assigned to the assignee of '459 and '015 applications during the pendency of the '015 application, and that a potential need to establish a filing date as early as that of the '459 application did not arise during the pendency of the '015 application.

53. The above statement in Ferguson's declaration was false. Ferguson knew of the commonality of subject matter while the application for the '223 patent was pending. On December 3, 1991, a preliminary amendment for a divisional application of the '223 case was filed. In the preliminary amendment, SEL and Ferguson represented to the PTO that there was a commonality of subject matter between the '892 patent and the subject matter of the divisional application which is part of the original '204 genealogy. The subject matter was so similar that SEL and Ferguson agreed to file a voluntary terminal disclaimer in the case.

54. The declarations of Yamazaki and Ferguson, by omission and affirmative misrepresentations, concealed from the PTO their prior knowledge of commonality. Had the PTO been apprised of the true facts, it would have materially affected the decision of the Examiner to grant the Certificate of Correction in the '204 patent, and the reissue patents in the '476 and '223 cases.

55. On November 8, 1996, SEL and Ferguson submitted Yamazaki's '476 declaration to the PTO in support of the application for a Certificate of Correction without disclosing to the PTO that Yamazaki's '223 declaration, which is virtually identical to the '476 declaration, had been rejected by the PTO.

56. As alleged above, Yamazaki and Ferguson were aware of the commonality between the '204 genealogy and the chain of patents for the '892 patent. However, Yamazaki and Ferguson did not disclose to the PTO during prosecution of any application in the original '204 genealogy relevant references cited by the Japanese Patent Office during prosecution of the '892 patent's foreign priority application. In particular, Yamazaki failed to disclose the Nikkei Electronics (December 20, 1982, page 168) article by Zenko Hirose which was a material reference cited by the Japanese Patent Office in rejecting Japanese applications 57-146561 and 57-182546. Other references cited by the Japanese Patent Office that SEL and Ferguson did not disclose to the PTO, include: Japanese patent application 55-11329; Japanese patent application 54-136274; JP-40940, Solar Cells (Vol. 2, 12/1980); Journal of Non-Crystalline Solids (Vol. 68, 1984); and UK 2,130,008. All these references ultimately led to the rejection by the Japanese patent office of Japanese applications 57-146561 and 57-182546.

57. During prosecution of the request for reissue of the '476 patent and the '223 patent, SEL and Ferguson submitted an Information Disclose Statement, dated March 21, 1995, to the PTO. The Information Disclosure Statement for reissue of the '476 patent was also submitted to the PTO during prosecution of the request of a Certificate of Correction for the '204 patent. None of SEL's Information Disclosure Statements disclosed to the PTO the relevant references cited by the Japanese Patent Office during

prosecution of the '892 patent's foreign priority Japanese patent applications 57-146561 and 57-182546. Thus, the failure to disclose the references that began during prosecution of the original '204 genealogy continued during prosecution of the applications for reissue and a certificate of correction, when the '892 patent was being added to the original '204 genealogy. At the time of the applications for reissue, and a certificate of correction, SEL and Ferguson were admittedly aware of the commonality of subject matter, but they did nothing to disclose material references cited in the foreign priority case when adding the '892 patent.

58. The '204 patent application states that:

> In conventional photoelectric conversion devices of the type described above, however, since the I-type second non-single-crystal semiconductor layer is formed to inevitably contain oxygen with a concentration above 10^{20} atoms/cm^3, or/and carbon with a concentration above 10^{20} atoms/cm^3, or/and phosphorus with a concentration as high as above $5x10^{17}$ atoms/cm^3...

59. In Japanese priority document 57-146561, SEL and Yamazaki represented materially different concentration levels as conventional from the representation above made in the '204 patent application. According to the representations made by Yamazaki and SEL in Japanese priority application 57-146561, filed in August 1982, the conventional levels of oxygen were $1x10^{18}$ atoms/cm^3, not "inevitably" above 10^{20} atoms/cm^3 as claimed in the specification of the '204 patent. Japanese foreign priority application 57-146561 is plainly inconsistent with a basic representation by SEL and Ferguson in the '204 patent in support of their assertion of patentability. SEL and Ferguson

never disclosed Yamazaki's inconsistent representations to the PTO.

60. SEL and Ferguson also fraudulently claimed the priority date of Japanese patent application 57-146561 for the '892 patent application with respect to the oxygen and carbon concentration ranges. The '892 patent claims as an invention oxygen and carbon concentration levels equal to or below $5x10^{18}$ atoms/cm3 and $4x10^{18}$ atoms/cm^3, respectively. At no time during prosecution of the '892 patent did Yamazaki disclose that the Japanese foreign priority application 57-146561 disclosed oxygen levels at or below $5x10^{16}$ atoms/cm^3 and carbon levels and at or below $4x10^{17}$ atoms/cm^3.

61. On August 8, 1983, only 2 weeks prior to the August 22, 1983 filing date of the '892 patent application, SEL and Yamazaki, obviously aware of the discrepancy between the two applications, did attempt to amend the Japanese priority application to revise concentration levels for oxygen and carbon upward to match those disclosed in the application leading to the '892 patent which was undoubtedly being prepared at that time. Yamazaki's proposed amendment was never entered by the Japanese patent office.

62. On November 7, 1987, the Japanese patent office rejected the amendment to Japanese application 57-146561. SEL subsequently filed three additional amendments, all of which were rejected by the Japanese patent office. In August 1994, an Appeal Board in the Japanese patent office affirmed all four previous rejections. In affirming the rejection of the first amendment, the Appeal Board noted that the amendment "chang[ed] essential matter of the specification" requiring rejection. Because the amendment was rejected by the Japanese patent office, the

Japanese foreign priority documents never supported the claims of the '892 patent and could not support any application in the '204 genealogy. SEL and Ferguson never disclosed the rejection of the amendment to the PTO during prosecution of the '892 patent, during prosecution of the original '204 genealogy and when filing for reissue and a certificate of correction to add the '892 patent to the original '204 genealogy.

63. At the time the '892 patent was added to the '204 genealogy by reissue and certificate of correction, the claims in Japanese application 57-146561 were also inconsistent with the claims in the '204 genealogy. Again, this inconsistently was not disclosed by SEL and Ferguson to the PTO.

64. SEL and Ferguson cannot claim that they were unaware of Japanese application 57-146561 as prosecution and appeals in that matter continued over a 12 year period and the final rejection was received at about the same time Yamazaki represented he became aware of the commonality between the '892 patent and the original '204 genealogy.

65. Yamazaki did submit copies of the Japanese foreign priority application and the rejected amendment to the PTO during prosecution of the '892 patent – in Japanese. It was extremely unlikely the examiner read Japanese. By filing the documents in Japanese, SEL and Ferguson made it a virtual certainty that it would be very difficult for a person not able to read Japanese to recognize that the certified copy included two separate documents. The duty of candor and good faith required that SEL and Ferguson disclose the inconsistency and the rejection of the amendment by the Japanese patent office.

66. SEL and Ferguson continued their concealment of the differences between Japanese application 57-146561 and the amendment when, during the prosecution of the '636 patent, they supplied the PTO with a translation that was inaccurate and misleading. The translation filed by SEL and Ferguson deleted the drawings as originally filed and included only the as-amended drawings. The translation was arranged with consecutive page numbers with the as-amended drawings attached to the back and the date of the amendment was deleted. This gave the appearance of an application along with a preliminary amendment filed together rather than two separate filings made months apart.

67. During prosecution of the '204 patent application, Yamazaki failed disclose to the PTO relevant references cited during prosecution of previously filed divisional and continuation-in-part applications in the '204 genealogy. These references not disclosed include references cited in the application for U.S. Patent No. 4,581,476, (Japanese Laid-Open Application No. 57-187972; M. Möller et al., *Conference Record*, 167th IEEE *Photovoltaic Specialists Conference*, (September 1982), pages 1376-1380) in abandoned U.S. Patent Application Serial No. 785,586 (Japanese Laid-Open Application No. 57-187972; M. Möller et al. Conference Record, 167th IEEE *Photovoltaic Specialists Conference* (September 1982), pages 1376-1380; Hamakawa, Y., *Amorphous Semiconductor Technologies and Devices*, pages 194, 198, (1982); U.S. Patent No. 4,425,143; U.S. Patent No. 3,155,621; U.S. Patent No. 3,892,606; U.S. Patent No. 3,492,975); and in the application for U.S. Patent No. 5,077,223 (Magee & Carlson, *Investigation of the Hydrogen and Impurity Contents of Amorphous Silicon by Secondary Ion Mass Spectroscopy*, Solar Cells, Vol. 2, pages 365-376 (1980)).

Inequitable Conduct During
Prosecution Of The '400 Genealogy

68. Yamazaki and SEL had previously filed two patent applications in-Japan that named him as the sole inventor, Japanese Laid-Open Applications 58-155773 and 58-155774. These two Japanese applications were published on September 16, 1983, and are, therefore, prior art references to the '400 genealogy. As the sole inventor and the assignee, SEL and Yamazaki were aware of these laid open applications prior to the filing of each application in the '400 genealogy, but never disclosed these prior art references to the PTO.

69. Japanese laid-open applications 58-155773 and 58-155774 disclose a non-single crystal semiconductor layer having an alkali metal element at a density of $1x10^{14}$ to $1x10^{17}$ atoms/cm^3 and an oxygen concentration below $1x10^{18}$ atoms/cm^3, which the applications assert is the conventional level. Sodium is an alkali metal and these references anticipate both the sodium claims and the sodium plus oxygen claims of the '400 patent In addition, the references are contrary to the '400 patent's characterization of prior art semiconductor devices as having sodium concentrations "as large as $1x10^{20}$ atoms/cm^3 or above."

70. During the prosecution of parent patens U.S. 4,690,717 (the '717 patent) and U.S. 5,043,772 (the '772 patent), the Examiner had finally rejected claims directed to both low sodium and low oxygen levels in the amorphous silicon intrinsic semiconductor layer, stating they were obvious in view of the references that recited either low sodium or low oxygen. On appeal, SEL and Ferguson represented to the Board of Patent Appeals and Interferences that applications in the '400 genealogy were the first to disclose or to teach reducing both sodium and oxygen in an

intrinsic layer. This representation by SEL and Ferguson was false because Yamazaki's Japanese laid-open applications 58-155773, and 58-155774, filed by SEL had made such a public disclosure long before any disclosure was made by SEL in the '400 genealogy.

71. The '400 genealogy claims benefit of a foreign priority date based on the filing of Japanese application no. 60-96391 ("the '400 foreign priority application"). The '400 foreign priority application was rejected by the Japanese examiner as unpatentable over three references: Japanese laid-open applications 55-157276 and 56-38873, and the article appearing on pages 163-179 of the December 20, 1982 issue of Nikkei Electronics. In response to the Japanese rejection, SEL amended its claims to require both low sodium and low oxygen. However, the '400 foreign priority application was never allowed by the Japanese patent office.

72. During prosecution of the '400 genealogy, Yamazaki did not disclose to the PTO any of the three references cited by the Japanese examiner in rejecting the '400 foreign priority application. The Manual of Patent Examining Procedure requires that all references cited during the examination of a foreign patent application whose priority is claimed in a U.S. patent application be disclosed to the PTO.

73. During prosecution of the '400 patent, the examiner rejected all pending claims based on Japanese laid-open applications nos. 58-92217 and 58-92218. Translations of these two Japanese laid open applications were submitted to the PTO by SEL and Ferguson in an Amendment and Information Disclosure Statement dated June 29, 1995. To overcome the rejection, SEL and Ferguson argued, based on the translations that they had submitted, that:

> The statement made at page 9 of '218 with respect to the pre-film states that the 'background level can be made as 10^{14} cm^3 or less ...' From this, it can further be seen that the statement is simply directed to an ideal goal which should be achieved for the sodium concentration in the pre-film.

The rejection was overcome by this argument and the '400 patent later issued. Correctly translated, however, the passage in question states that "the concentrations of sodium, water, oxygen in the background level were able to be made to 10^{14} cm^3 or less in the formed film." Thus, SEL and Ferguson were able to overcome the examiner's rejection only by mistranslating the reference to support an argument directly contrary to what the document said in Japanese.

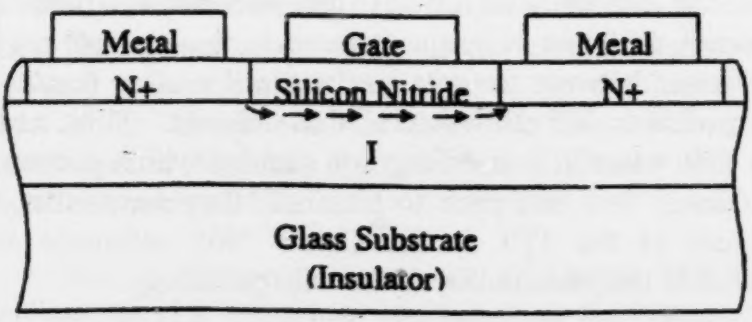
Inequitable Conduct During
Prosecution Of The '636 Genealogy

74. While prosecuting the '636 patent, SEL and Ferguson supplied a *partial* translation of Canon laid-open application no. 56-135968 (the "Canon '968 reference"). The most material portion of Canon reference was not translated into English and, therefore, the most material aspects of Canon reference were withheld from the Examiner.

75. The untranslated portion of Canon reference describes a "coplanar thin-film transistor" (TFT). The TFT described in the untranslated text is not shown in a figure in the Canon reference. Thus, by leaving the descriptive text untranslated, SEL and Ferguson kept the U.S. examiner from knowing that TFT disclosed by Canon and the TFT disclosed by SEL and Yamazaki in the '636 genealogy were virtually identical.

76. The Canon '968 reference was submitted in an Information Disclosure Statement dated November 15, 1995. SEL and Ferguson carefully did not state in the Information Disclosure Statement what was shown in the Canon '968 reference. Thus, the examiner was left to draw his conclusions based on the partial translation submitted. Furthermore, SEL and Ferguson discussed the references cited in a Japanese Opposition to the Canon '968 reference – leaving the impression that it was the references cited against the Canon '968 referenced and not the Canon '968 reference itself that was material to the patentability of the '636 genealogy.

77. Set forth below is a picture of the Canon TFT as described in the untranslated text of the Canon '968 reference.



Canon TFT

As shown above, the untranslated portion of Canon '968 reference discloses a TFT with a channel region (indicated by the arrows) "interposed between the gate insulator and another insulator [*i.e.*, the glass substrate]."

78. The failure of SEL and Ferguson to translate the entire Canon reference was a material omission because

they had previously relied heavily on a claim recitation of a channel region "interposed between the gate insulator and another insulator" to obtain allowance of the claims.

79. In U.S. Patent Application No. 08/214,494, a parent of the '636 patent, claims were amended in November 1994 to recite a channel region "wherein said channel region is interposed between the gate insulator and another insulator." These amendments were entered by agreement between the Examiner and SEL at a November 18, 1994 Examiner's Interview which was attended by Ferguson and Yamazaki. The Amendment recalls that "[a]t the interview, proposed amendments to the claims were submitted, the amended claims being drawn to an IGFET structure of the type wherein a non-single crystalline channel region is interposed between the gate insulator and another insulator."

80. As a result of the Amendment and the Interview, SEL and Ferguson knew reciting a channel region "interposed between the gate insulator and another insulator" was critical to use allowance of those claims. Thus, at the later time when SEL and Ferguson decided which portion of the Canon '968 reference to translate, they knew that the structure of the TFT in the Canon '968 reference was material to the patentability of the '636 genealogy.

81. The Canon '968 reference is also material because in combination with Yamazaki's laid-open patent application no. 59-35423 (Yamazaki's '423 application) the alleged invention in the '636 patent is rendered obvious. The Canon TFT includes all of the elements of certain claims in the '636 patent (e.g., Claim 1) except for the recited impurity concentrations. Yamazaki's '423 application teaches the requisite impurity concentrations and contains an express suggestion to apply those teachings to "an insulated gate field effect semiconductor device having an NIN junction." The

Canon TFT is an insulated-gate field effect semiconductor device having an NIN junction. Thus, the Canon TFT, when combined with the teachings of Yamazaki '423, as suggested by Yamazaki '423, results in a structure with all the elements of certain claims of the '636 patent.

82. The untranslated portion of Canon reference is therefore material because it establishes in combination with Yamazaki '423 application a *prima facie* case of unpatentability.

83. The submission to the PTO of the partial translation of the Canon reference and the Yamazaki '423 application was done in the same Information Disclosure Statement. Thus, SEL and Ferguson had both references before them when they decided to submit only a partial translation. SEL and Ferguson also clearly understood the materiality to patentability of TFTs that included a channel region "interposed between the gate insulator and another insulator" at the time that their arguments were made in the parent of the '636 patent. Nevertheless, SEL and Ferguson elected not to translate the portion of Canon '968 that described Canon's TFT.

84. The partial translation of Canon '968 likely deceived the U.S. Examiner into believing that Canon '968 was less relevant than it really was. Such deception is exactly what 37 C.F.R. § 1.56 is intended to prevent.

85. In the prosecution of U.S. Patent Number 5,315,132 (a predecessor of a patent-in-suit, U.S. Patent No. 5,543,636) SEL and Ferguson affirmatively and materially misrepresented that the concentration of impurities in the Nakagawa reference (U.S. Patent No. 4,766,477) was about ten times greater than it actually is. On page 7 of the amendment mailed May 25, 1993, (received by the United

States Patent Office on May 28, 1993), SEL and Ferguson affirmatively represented to the Examiner that the density of silicon in amorphous silicon was 4×10^{23} atoms/cm^3, rather than the correct 5×10^{22} atoms/cm^3. By inducing the Examiner to use such a high density, that person caused the Examiner to conclude that the Nakagawa reference discloses an impurity concentration outside the claimed 5×10^{18} atoms/cm^3 range. Had the misrepresentation not been made and the correct density been used, the Examiner would have realized that the Nakagawa reference indeed discloses impurity concentrations of 4×10^{18} atoms/cm^3 clearly within 5×10^{18} atoms/cm^3 range claimed by SEL and Yamazaki.

WHEREFORE, defendants pray this Court:

a) Dismiss the Complaint herein with prejudice,

b) Enter a judgment and decree declaring that U.S. Patent Nos. 5,349,204, 5,521,400 and 5,543,636 are invalid, void and unenforceable and that defendants are not infringing any valid and enforceable claim of the Patents-in-Suit; and

c) Award defendants their reasonable costs and attorney fees pursuant to 35 U.S.C. § 285.

COUNTERCLAIMS

86. Counterclaim plaintiff SEC is a Korean corporation with its principal place of business at Seoul, South Korea.

87. Counterclaim plaintiff SEA is a New York corporation with its principal place of business at 105 Challenger Road, Ridgefield Park, New Jersey.

88. Counterclaim plaintiff SSI is a California corporation with its principal place of business at 3655 North First Street, San Jose, California.

89. Counterclaim defendant Semiconductor Energy Laboratory Co., Ltd. ("SEL") is a Japanese corporation with its principal place of business at Atsugi-shi, Kanagawa-Ken, Japan. SEL is the asserted owner of the patents-in-suit. SEL has appeared in this action and no further service of process is needed for SEL.

Jurisdiction And Venue

90. These counterclaims are actions for civil relief under: 15 U.S.C. § 2; the law of unfair competition of the states of New Jersey and California; the antitrust laws of the states of New Jersey, N.J. Stat. Ann. § 56.9-1 et seq. and California, Cal. Bus. & Prof. Code § 16700 et seq.; and, Title IX of the Organized Crime Control Act of 1970 ("RICO"), which is codified at 18 U.S.C. §§ 1961 *et seq.;* civil relief under the organized crime laws of the State of New Jersey and its Criminal Justice Act of 1970, found at Part 6 of Title 2C of the New Jersey Code of Criminal Justice, ("N.J. RICO") which is codified at New Jersey Statutes, 2C:41-1 *et seq.*

91. This Court has jurisdiction over the counterclaims under 28 U.S.C. § 1331 (Federal Question Jurisdiction), 28 U.S.C. § 1332 (Diversity Jurisdiction), 28 U.S.C. §Ê1367(a) (Supplemental Jurisdiction) and 18 U.S.C. § 1964(c) (RICO).

92. Venue is proper in this district pursuant to 28 U.S.C. § 1391(a) as part of the cause of action against SEL arose in this district through their dealings with their agents in this district and through their dealings with the U.S. Patent and Trademark Office, which is located within this district.

Background Of Federal And
State Antitrust Law Violations

93. The relevant markets are the United States markets for (1) amorphous silicon with low impurity levels, which is a necessary component of a number of products (including active matrix displays used in notebook computers); (2) technology for production of amorphous silicon with low impurity levels; and (3) innovation involving amorphous silicon with low impurity levels. For a number of products, there is no adequate substitute for amorphous silicon with low impurity levels. Moreover, successful enforcement of SEL's Patents-in-Suit will have actual detrimental effects and an adverse impact to competition.

94. SEL's conduct in obtaining the patents in suit, as described above in paragraphs 26 through 86 and incorporated herein by reference, constitutes common law fraud.

95. SEL is attempting to monopolize each of the relevant markets by fraudulently obtaining and enforcing and threatening to enforce invalid patents, including the patents in suit, in a manner that creates a dangerous probability that SEL will obtain monopoly power in each of said relevant markets. The patents in suit are directed to amorphous silicon materials containing low impurity levels, and as such purport to establish practical standards whereby any semiconductor devices achieving the impurity concentration thresholds asserted in the patents in suit infringe those patents. Moreover, the enforcement of SEL's fraudulently obtained patents precludes competition in the relevant technology and innovation markets because the patents claim impurity levels at or below certain impurity levels. If SEL

can enforce its fraudulently obtained patents, it will preclude competitors from developing and marketing other means by which such impurity levels may be obtained in amorphous silicon. SEL is thereby seeking to extract monopoly rents in these markets, increase its rivals' costs to compete with SEL in these markets, and/or exclude its competitors altogether from these markets by enforcing these fraudulently obtained patents through licensing and litigation.

96. If SEL is able to enforce its fraudulently obtained patents in this manner, it will essentially control the relevant markets for low impurity amorphous silicon products, technology and innovation and effectively bar others from developing new techniques and improvements in this area, thus establishing monopoly power in these relevant markets.

97. Samsung is both a competitor in the relevant markets and a consumer in the relevant markets. Samsung has developed its own technology and conducts its own innovations in amorphous silicon with low impurity levels, and also sought to license technology from others in this area. Samsung is therefore injured by SEL's conduct because it will be impossible to economically implement technology or innovate in the relevant market if SEL is permitted to control the intellectual property rights to any end-product that meets the asserted impurity thresholds of its fraudulently obtained patents.

COUNT I – VIOLATION OF UNITED STATES ANTITRUST LAWS

98. Counterclaim plaintiffs reallege paragraphs 26 to 86 and 87 to 97 as if fully set forth herein.

99. The above constitutes a violation of the antitrust laws of the United States. 15 U.S.C. § 2.

COUNT II – VIOLATION OF NEW JERSEY ANTITRUST LAWS

100. Counterclaim plaintiffs reallege paragraphs 26 to 86 and 87 to 97 as if fully set forth herein.

101. The above constitutes a violation of the antitrust laws of the state of New Jersey, because Samsung sells products dependent upon amorphous silicon with low impurity leveland, related technology and innovations, in New Jersey and because SEA is located in New Jersey. N.J. Sta. Ann § 56:9-1 *et seq.*

COUNT III – VIOLATION OF CALIFORNIA ANTITRUST LAWS

102. Counterclaim plaintiffs reallege paragraphs 26 to 86 and 87 to 97 as if fully set forth herein.

103. The above constitute a violation of the antitrust laws of the state of California because Samsung sells products dependent upon amorphous silicon with low impurity levels, and related technology and innovations, in California and SSI is located in California, Cal. Bus. & Prof. Code § 16700 *et seq.*

Background Of SEL's Unfair Competition Activities

104. SEL competes unfairly against Samsung by engaging in unfair practices which include at least the following acts:

a. Upon information and belief, SEI engages in discriminatory licensing practices, whereby it offers and grants more favored license terms to Samsung's competitors even though such competitors are similarly situated to Samsung, in order to place Samsung at a disadvantage with respect to such competitors, also constituting, *inter alia*, patent misuse.

b. SEL unduly delayed the issuance of patents containing claims asserted against Samsung by filing multiple continuation applications in order to wrongfully obtain belated claims covering the commercial products of its competitors, and to lull competitors such as Samsung into false belief and reliance as to the scope of the patent which SEL had taken out for an given alleged invention. This also constitutes laches, *inter alia*, which bars SEL from asserting such claims against Samsung.

c. SEL is attempting to enforce its patents against Samsung, employing threats of litigation and actual litigation, even though SEL knows that its patents are invalid and unenforceable due to SEL's fraudulent conduct before the PTO and subsequent patent misuse.

d. The unfair acts committed by SEL against Samsung have harmed Samsung.

COUNT IV – VIOLATION OF UNFAIR COMPETITION LAWS OF CALIFORNIA

105. Counterclaim plaintiffs reallege paragraphs 26 to 86 and 104 as if fully set forth herein.

106. The above constitutes a violation of the California laws related to unfair competition as Samsung sells products dependent upon amorphous silicon with low impurity levels, and related technology and innovations, in California and SSI is located in California, including, but not limited to, Cal. Bus. & Prof. Code § 17200 *et seq.*

COUNT V – VIOLATION OF UNFAIR COMPETITION LAWS OF NEW JERSEY

107. Counterclaim plaintiffs reallege paragraphs 26 to 86 and 104 to as if fully set forth herein.

108. The above constitutes a violation of the New Jersey laws related to unfair competition as Samsung sells products dependent upon amorphous silicon with low impurity levels, and related technology and innovations, in New Jersey and SEA is based in New Jersey.

BACKGROUND OF RICO CLAIMS

109. Counterclaim defendant SEL, with the assistance and cooperation of others, including its employees and attorney Ferguson, developed a plan to defraud, for obtaining money or property by mans of false or fraudulent pretenses, or representations to representatives of the United States Patent and Trademark Office ("PTO") and various manufacturers and sellers of active matrix display devices, including SEC, SEA and SSI (collectively "Samsung"). The plan principally consisted of procuring United States patents through knowing and false filings and representations to the PTO, followed by attempts to coerce multiple active matrix display panel manufacturers and sellers to pay for licenses on these invalid and unenforceable patents.

110. To carry out their scheme or artifice to defraud, counterclaim defendant SEL participated in the conduct of an enterprise affecting interstate commerce, foreign commerce, as well as commerce and trade in the state of New Jersey. The enterprise consists of an association-in-fact comprised of SEL, its employees, and their respective attorneys, including Ferguson, agents, and possibly others not yet known to Samsung. The enterprise carried out their plan, scheme or artifice to defraud through a pattern of racketeering activity, including: multiple acts of mail fraud; multiple acts of wire fraud; multiple acts of filing fraudulent instruments with the United States government; and uttering or writing records that the counterclaim defendants knew contained false statements and information, with the purpose of obtaining property from the PTO and others by false pretenses. Upon information and belief, SEL invested some of the proceeds obtained through this pattern of activity back into the enterprise, for the purpose of giving the enterprise the financial resources required to continue its efforts against its targets, including Samsung. Samsung, as a direct and proximate result of its detrimental reliance on SEL's representations to it and those made by the enterprise's members to the PTO, has been injured by this scheme by having to investigate and defend against SEL's baseless claims.

111. SEL, with the help and cooperation of its employees, and their respective attorneys and agents, including Ferguson, and possibly others not yet known to Samsung, obtained patents from the PTO through the use of false, fraudulent and misleading communications that were transmitted via United States mail for filing with the PTO. These communications are all part of the prosecution file histories on file at the PTO as described herein.

112. Next, SEL, its employees and possibly others identified a number of manufactures and sellers of active matrix display panels as potential targets of the scheme. Through the U.S. Mail and by interstate telephone wires, communications have been made to Samsung and others for the purpose of attempting to obtain money as "license fees". In these communications, SEL accused Samsung and other targets of infringing the patents-in-suit and demanded that Samsung pay a license fee or royalty of the aggregates sales of the "infringing products." The communications have made clear that, if the license fee arrangement were not accepted, SEL would pursue litigation. These demands were made to Samsung even though SEL and others involved in the enterprise or plan realized that the patents were neither enforceable nor valid.

113. As a direct result of its detrimental reliance on: SEL's fraudulent misrepresentations to the PTO, which resulted in SEL's obtaining the patents-in-suit; SEL's filing of this sham litigation; and SEL's representations to the industry (which includes Samsung's customers), Samsung has been injured. Under the Patent Laws of the United, SEL's patents enjoy a presumption of invalidity. Although Samsung believes that it will ultimately prevail in this litigation, the outcome of any litigation cannot be predicted with certainty and therefore Samsung has taken action, apart from its defense in this lawsuit, to protect business interests. These actions, and other injuries to Samsung, are described in the following paragraphs.

114. Samsung has embarked on a research and development program to design-around the SEL patents. The objective of the design-around program is to develop and implement new manufacturing processes that will allow Samsung to produce active matrix displays which SEL could not possibly claim infringes any of the patents-in-suit.

Samsung would have no reason to undertake efforts of this nature had SEL not obtained and sought to enforce its patents in this sham litigation. If Samsung changes its active matrix displays in order to incorporate the design-around technology, SEL's fraudulent procurement of the patents-in-suit and sham litigation will produce the same benefit to SEL that a lawfully obtained patent would obtain – the exclusion of others (here, Samsung) from practicing the alleged inventions described in the patents-in-suit. The design-around program has caused Samsung to be injured in the following ways:

a. To date, Samsung has expended considerable resources in furtherance of these design-around efforts, which include employee time, materials and analytical testing.

b. Even if Samsung is able to produce a commercial product incorporating this design-around technology, the manufacturing costs under the alternative manufacturing process would certainly be higher than the current manufacturing process. Also, it is uncertain whether Samsung's customers will accept active matrix displays incorporating the design-around technology. Thus, even if Samsung's design-around research and development efforts are successful, Samsung may suffer future loss of business and future loss of profits.

c. Samsung has also been damaged because the design-around program has diverted Samsung's research and development efforts away from more effective and productive

endeavors that Samsung would have otherwise engaged in.

115. Samsung has been contacted by customers and users of active matrix displays who now seek assurances from Samsung that Samsung will indemnify them in the event that SEL makes patent infringement claims directly against them. Furthermore, Samsung customers have sought assurances that Samsung will be able to continue to supply them with active matrix displays, irrespective of the outcome of this sham litigation. Samsung's customers have raised these concerns due to their reliance on: SEL's fraudulent misrepresentations to the PTO, which resulted in SEL's obtaining the patents-in-suit; SEL's filing of this sham litigation; and SEL's representations to the industry (which includes Samsung's customers). To protect its business, Samsung has expended time and resources to investigate and consider for implementation, several alternatives to alleviate these customer concerns. The alternatives Samsung is considering will result in added costs to Samsung, which would not have existed had SEL not obtained and sought to enforce the patents-in-suit. These alternatives could include contractual guarantees or other assurances, as well as other obligations on Samsung that it would not have otherwise incurred. Furthermore, Samsung's goodwill and standing with its customers have been harmed by virtue of SEL's asserting the patents-in-suit against Samsung.

116. SEA, one of the counterclaim plaintiffs, has its principal place of business in New Jersey and has suffered damages in New Jersey, including expenses resulting from this litigation.

117. The aforementioned correspondence was transmitted through the use of the mails and/or facsimile, through the use of interstate wires and was in furtherance of a

plan, scheme or artifice to defraud or for obtaining money or property by means of false or fraudulent representations or pretenses. As such, in mailing and telefaxing each correspondence, the counterclaim defendant committed at least two or more acts of mail fraud under the federal statute, wire fraud under the federal statute and/or false or fraudulent activities under the New Jersey statute. These acts constituted a pattern of racketeering activity within the meaning of both the federal and New Jersey RICO statutes.

118. For the purpose of these counterclaims, the RICO and New Jersey RICO enterprise is an association-in-fact consisting of SEL, its employees, its officers, agents, and attorneys, including Ferguson, and possibly other persons not yet known to Samsung. Ferguson was instrumental in that he operated as the patent attorney who communicated with and obtained patents from the PTO.

119. The enterprise, consisting of SEL (the patent assignee), it employees (including the purported inventor of the patents-in-suit) and their respective attorneys, including Ferguson, and agents, exist for the purposes of, among other things, fraudulently acquiring and holding the patents-in-suit and fraudulently asserting the patent rights thereunder. The activities at issue in these counterclaims are merely one part of the enterprise's operations.

120. The counterclaim defendant and others conducted, and continue to conduct, the affairs of the enterprise through a pattern of racketeering activity. The pattern includes, but is not limited to: numerous use of mail and/or wire fraud on Samsung and others; numerous use of mail and/or wire fraud on the PTO; filing fraudulent documents with the PTO; submitting false and fraudulent documents to the PTO and the target companies, including Samsung, with the intent of obtaining patents from the PTO

and money from the targets. These various acts are interrelated and represent a coordinated effort on the part of SEL and its collaborators to obtain patents and use patents which the counterclaim defendant new from the beginning and continues to know are invalid and unenforceable, to coerce license payments from the various target companies, including Samsung, by threatening them with vexatious litigation that, although not sustainable, would be both expensive and time consuming to defend. Moreover, SEL has invested some or all of the moneys obtained from this pattern of racketeering activity into the operation of the enterprise, permitting it to continue its operations against the targets, including Samsung.

121. SEL knowingly, recklessly or culpably engaged in the scheme set forth herein by conduct, including but not limited to (a) obtaining United States Patents through knowing misrepresentations to the PTO in papers filed with that office and transmitted to it through the U.S. mail: (b) using those resulting invalid patents as leverage to coerce settlements with makers and sellers of products that include amorphous silicon; and (c) using those settlements to finance further coercive activities to achieve further settlements.

122. SEL is a "person" as that term is defined in 18 U.S.C. § 1961(3) and N.J.S.A. 2C:41-1.b.

123. At all times relevant to the events alleged in these Counterclaim, the counterclaim defendant SEL and its employees, agents and attorneys were associated in an "enterprise" as that term is defined in 18 U.S.C. § 1961(4) of RICO and N.J.S.A. 2C:41-1.c, that was engaged in interstate commerce, foreign commerce and trade, as well as trade and commerce in the State of New Jersey (where SEA is located), and the activities of which affected interstate commerce,

foreign commerce, as well as trade and commerce in the State of New Jersey, (where SEA is located).

124. At all times relevant to the events alleged in these Counterclaims, the Counterclaim defendant engaged in a pattern of racketeering activity, as that term is defined in 18 U.S.C. § 1961(1), ,18 U.S.C. § 1961(5) and N.J.S.A. 2C:41-1.d.. This activity as alleged in greater detail herein constitutes multiple violations of the mail and wire fraud statutes, 18 U.S.C. §§ 1341 and 1343 and New Jersey's Code of Criminal Justice's laws against Forgery and Fraudulent Practices, and analogous laws of other jurisdictions, including but not limited to Section 1001 of Title 18, United States Code, by SEL and other members of the enterprise.

125. The above-referenced acts of racketeering activity occurred after the effective date of the federal and New Jersey RICO statutes and within ten years of each other. These activities were undertaken for the purpose of furthering their common scheme or artifice as described above and was part of a recurring pattern that constituted a pattern of racketeering activity as the term is defined in 18 U.S.C. § 1961(5) of RICO and N.J.S.A. 2C:41-1.d.

COUNT VI – VIOLATION OF 18 U.S.C. § 1962(A)

126. Samsung realleges paragraphs 26 through 85 and 109 through 125 of though fully set forth herein.

127. In violation of 18 U.S.C. § 1962(a), SEL, both directly and through its attorneys and agents, caused, and sought to cause, Samsung and other targets pay for licenses on invalid and unenforceable patents. SEL has received, directly or indirectly, income derived from this pattern of racketeering activity and has used or invested, directly or indirectly, such income, or the proceeds of such income, in

the operation of an enterprise engaged in, and whose activities affect, interstate and foreign commerce.

128. As a direct and proximate result of SEL's activities and conduct in violation of 18 U.S.C. § 1962(a) of RICO, Samsung has been injured in its business and property.

COUNT VII – CLAIM FOR RELIEF UNDER 18 U.S.C. § 1962(C)

129. Counterclaim Plaintiffs realleges paragraphs 26 through 85 and 109 through 125 as though fully set forth herein.

130. In violation of 18 U.S.C. § 1962(c), SEL, through its association with an enterprise engaged in interstate and foreign commerce, the activities of the enterprise also affect interstate and foreign commerce, conducted the enterprise in a pattern of racketeering activity as described above.

131. As a direct and proximate result of SEL's activities and conduct in violation of 18 U.S.C. § 1962(c), Samsung has been injured in its business and property.

COUNT VIII – VIOLATION OF NEW JERSEY RICO STATUTE 2C:41-2(A)

132. SEA realleges paragraphs 26 through 85 and 109 through 125 as though fully set forth herein.

133. SEL, both directly and through its attorneys and agents, caused, and sought to cause, SEA and others to pay for licenses on invalid and unenforceable patents. SEL has received, directly or indirectly, income derived from this

pattern of racketeering activity and has used or invested, directly or indirectly, such income, or the proceeds of such income, in the operation of an enterprise engaged in, and whose activities affect, trade or commerce, including trade or commerce in New Jersey, where SEA's business is based and has suffered its damages.

134. As a direct and proximate result of Counterclaim defendant's activities and conduct in violation of New Jersey Statute Annotated 2C:41-1(a), counterclaim plaintiff SEA has been injured in its business and property.

COUNT IX – VIOLATION OF NEW JERSEY RICO STATUTE 2C:41-2(C)

135. SEA realleges paragraphs 26 through 85 and 109 through 125 as though fully set forth herein.

136. SEL, through its association with an enterprise engaged in trade and commerce, the activities of the enterprise also affect trade and commerce, conducted the enterprise in a pattern of racketeering activity as described above.

137. As a direct and proximate result of Counterclaim defendants' activities and conduct in violation of New Jersey Statute Annotated 2C:41-2(c) SEA has been injured in its business and property.

PRAYER

WHEREFORE, defendants pray this Court:

1. The Court permanently enjoin SEL, its officers, employees, agents and anyone in privity with them,

or any one of them, from charging infringement, or instituting any action for infringement, or maintaining any action for infringement of the patents-in-suit against Samsung or anybody in privity with Samsung, including its successors, assigns, agents, suppliers and customers;

2. Award Samsung damages as allowed by law, including treble damages;

3. Award Samsung such other and further relief, in law and in equity, as Samsung may show itself to be entitled and as the Court deems just.

Respectfully submitted,
/s/
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Dated: October 31, 1997

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CERTIFICATE OF SERVICE

I hereby certify that copies of Samsung's Second Amended Answer and Counterclaims to SEL's First Amended Complaint were served this 31st day of October 1997 upon the following:

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